1959

CHEVROLET

TRUCK OPERATORS MANUAL

OPERATOR'S MANUAL

For 1959

Chevrolet Light, Medium and Heavy Duty Trucks

SECOND EDITION

INTRODUCTION

This operator's and owner's manual has been prepared to furnish information pertaining to the driving, care and maintenance of Chevrolet trucks as well as to provide technical data that may be of value or interest to truck owners.

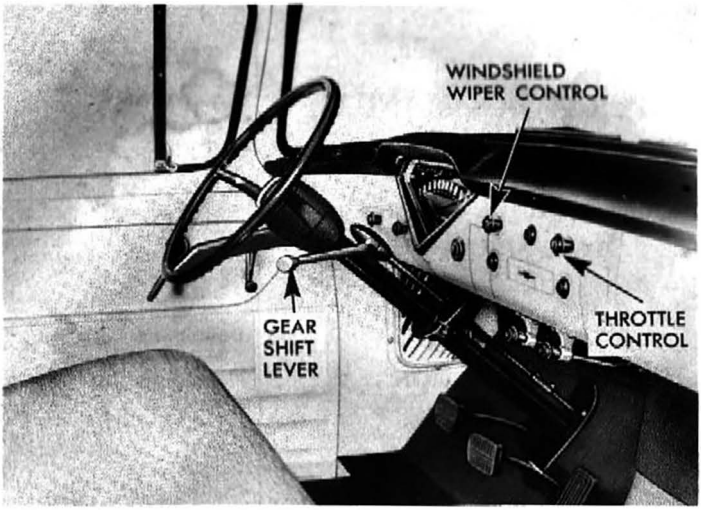
The subject index at the right is a ready reference to the key subjects and will assist in finding any subject covered in the booklet.

All information, illustrations and specifications contained in this literature are based on the latest product information available at the time of publication approval. The right is reserved to make changes at any time without notice.

Part No. 3757218

Chevrolet Motor Division
General Motors Corporation
Detroit 2, Michigan

SUBJECT INDEX



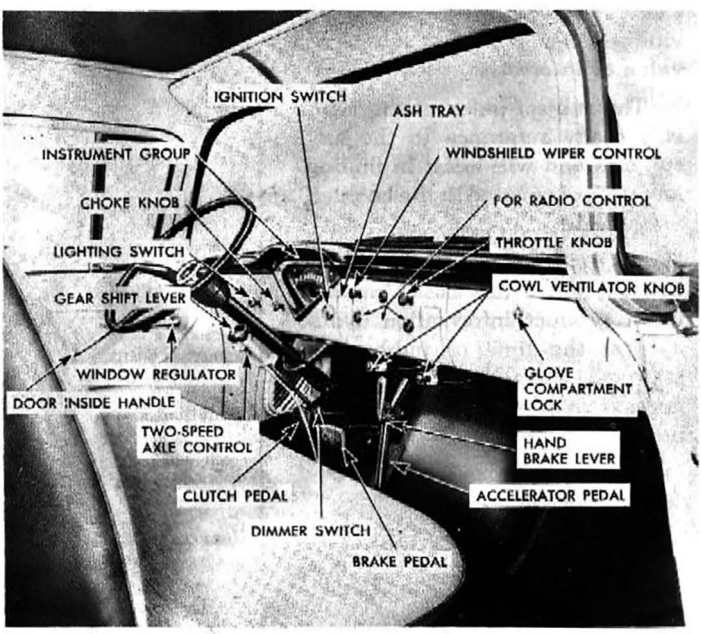


Fig. 1—Instruments and Controls
(Top) ½ and ¾ Ton
(Bottom) 1, 1½, 2 and 2½ Ton

CHAPTER I

DRIVER'S OPERATING INFORMATION

It is recommended that the maximum speed be confined to 50 miles per hour for the first 500 miles, however you should avoid driving for extended periods at any one constant speed, either slow or fast and avoid full throttle starts and severe application of the brakes in stopping.

Use the lowest gear ratio available when starting up with heavy loads and climbing grades to avoid lugging the engine.

Continuous driving at high speeds should not be done until the truck has been driven 2000 miles.

Such care in operating your new truck will assure proper mating-in of all the running surfaces of the moving parts of the engine, transmission and rear axle.

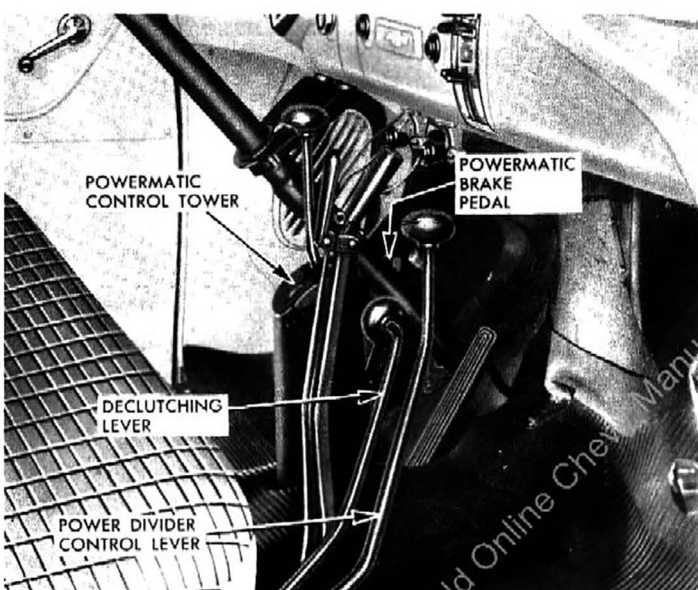


Fig. 2—Powermatic and Power Divider Controls

INSTRUMENTS AND CONTROLS

The type, location and operation of instruments and controls vary on different models and makes of vehicles; therefore, regardless of the experience an owner or driver may have had, it is advisable to familiarize one's self with the instrument and controls and their use before driving this new truck. The locations of various instruments and controls are shown in Figures 1 and 2.

Instrument Group

The instruments are grouped in a single triangular cluster on the instrument panel directly in front of the steering wheel (fig. 3).

Gasoline Gauge. The electrically operated gasoline gauge is at the upper right side of the instrument cluster (fig. 3). It is wired through the ignition switch and, therefore, only indicates the amount of fuel in the tank when the ignition switch is turned on.

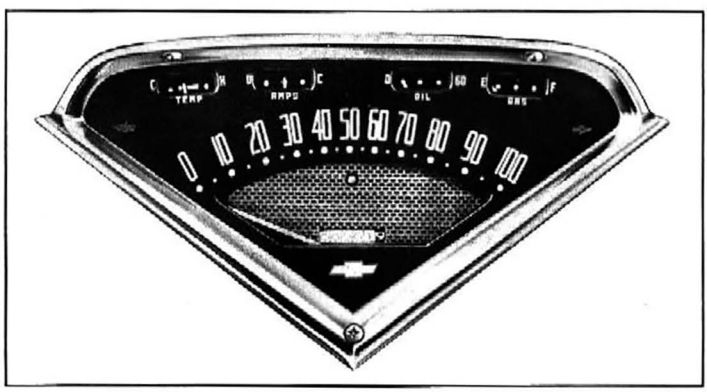


Fig. 3—Instrument Group

Temperature Gauge. The water temperature gauge is at the upper left side of the instrument cluster (fig. 3), with the sending unit located in the water jacket at the left rear of the cylinder head on 6-cylinder engines and at the front of the intake manifold on V-8 engines. This gauge may register anywhere within the band and still indicate normal operating temperatures. Hot weather, long hard driving, or prolonged

idling may cause the needle to be in the high range of the band. However, if the needle moves clear to the HOT end of the band, stop the engine until the cause of overheating is determined.

NOTE: Do not remove the radiator cap when engine is excessively hot, do not put water in an overheated engine, and do not run engine when indicator is above "H".

Ammeter (Battery Indicator). The Ammeter is to the left of center near the top of the cluster (fig. 3) and indicates the flow of current to and from the battery, except the current taken by the starting motor. Should the ammeter show discharge when the truck is being driven at medium speed, trouble is indicated in the charging system and the battery will soon become discharged.

Oil Pressure Gauge. This instrument is to the right of center near the top of the instrument cluster (fig. 3), and indicates whether or not the oil pump is working, but does not indicate the amount of oil in the crankcase.

A low reading is normal at idling speeds with a warm engine and light oil; however, as the engine speed is increased the hand should register near the center of the gauge. In cold weather (especially with heavy oil) the hand may move over to the "60" mark at comparatively low engine speeds.

NOTE: Do not accelerate the engine excessively until the oil is sufficiently warm to permit a lower pressure. If the gauge does not show any pressure, stop the engine immediately and determine the cause.

Speedometer. The speedometer is located in the instrument cluster and the hand moves across the dial indicating the speed of the vehicle in miles-per-hour.

Odometer. The group of figures visible through the opening just above the Chevrolet emblem on the instrument cluster is the odometer and indicates the total mileage the truck has been driven.

Headlight Beam Indicator. A red light in the recessed area below the 50 mark on the speedometer is lighted when the headlights are on the upper beam.

Overspeed Warning Light. An amber light located between the windshield wiper control and the cigarette lighter warns of excessive engine speed on overrun on V8 engines (except on 3 and 4000 series). This light should also light at the instant the ignition switch is turned on and go off after the engine is started.

Switches

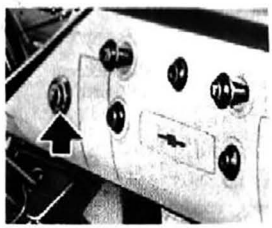


Fig. 4—Ignition Switch

Ignition Switch. The ignition switch is located near the bottom of the instrument panel slightly below and to the right of the instrument cluster (fig. 4), and is connected in the low tension circuit between the battery and the coil. This switch is used to make or break the ignition circuit when starting or stopping the engine.

The key is turned clockwise to turn the switch on and counterclockwise to turn the switch off.

On vehicles with ignition key starting the key is turned clockwise from the "ON" position to engage the starter, and counterclockwise to lock.

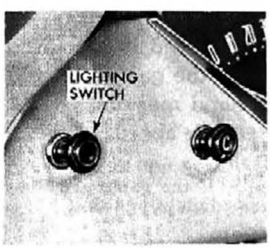


Fig. 5—Lighting Switch

Lighting Switch. The lighting switch, located to the left of the instrument group (fig. 5), controls the instrument lamps, headlamps, parking lamps, tail lamp and interior lamp. The interior lamp is turned on by rotating the knob all the way counterclockwise beyond the point where a slight resistance to turning is encountered. When this switch is pulled out to the first "on" position the instrument lamps, parking lamps and tail lamp are lighted. When the switch is pulled out to the last position the headlamps replace the parking lamps. A dual circuit breaker is incorporated in the main light switch to isolate the headlight circuit for greater safety. If a short should develop in either the headlight circuit or in the stop and dome lamp circuit, one or the other of the two circuit breakers will relieve the load on the electrical system, and at the same time, lights on the unaffected circuit will continue to function. A fuse in the switch protects the instrument panel and tail light circuits.

Dimmer Switch. The dimmer switch located on the toe-board to the left of the clutch pedal is used to switch the head-

lamp beam from "high" to "low" or "low" to "high." Each time the switch is depressed the light beam is reversed. A headlamp beam indicator is located below the 50 mark on the instrument cluster. When the lights are on upper beam a red light is visible through the indicator opening. Avoid use of upper beam when meeting other vehicles on the highway or in city traffic.

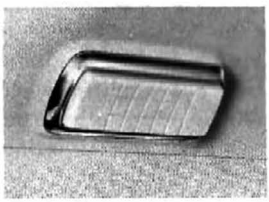


Fig. 6—Dome Lamp

Horn Button. The horn button is conveniently located at the center of the steering wheel.

Controls

Choke Control. The carburetor hand choke control knob is located to the left of and below the instrument cluster on the instrument panel (fig. 7). The purpose of this control is to close or partly close the carburetor choke valve. This restricts the air intake and produces a richer fuel mixture for starting, while at the same time opening the throttle by means of a fast idle link on the carburetor except on those models equipped with an updraft carburetor.

Fig. 7—Choke Control

When the engine is warm and the weather is warm, it should not be necessary to use the choke when starting the engine. When it is necessary to use the choke for starting, it should be pushed part way in as soon as the engine starts and all the way in as soon as the engine will run smoothly without its use.

CAUTION: Excessive use of the choke will provide a fuel mixture too rich to burn. Some of this unburned fuel will leak past the pistons and dilute the engine oil and result in improper lubrication, excessive engine wear and poor performance.

Hand Throttle Control. The hand throttle control knob used on all models is located to the right of center of the instrument

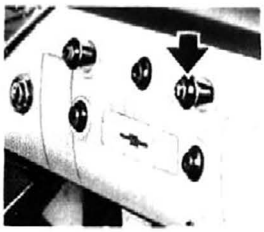


Fig. 8—Throttle Control

panel (fig. 8). Pulling out on the control knob opens the carburetor throttle to provide a uniform engine speed above the idle setting. It is generally advisable to pull the hand throttle control out slightly when starting the engine, especially if the engine has a tendency to stall a time or two after starting.

Starter Control. Ignition key starting is provided on Forward Control models, automatic transmission equipped models and all V-8 models. A starter pedal located near the center of the toe board to the right of the accelerator pedal is used on other truck models (fig. 9). Depressing this pedal or turning the ignition key to "START" engages the starting motor pinion with the teeth in the engine flywheel and closes the starter switch to provide an electrical circuit between the battery and starting motor, thereby cranking the engine. The starting motor draws considerable current from the battery, therefore, it should not be operated for more than 15 seconds at a time. If the engine does not start, locate the cause and correct it before the battery is run down.

Fig. 9—Control Pedals

CAUTION: The starter pedal or key must be released as soon as the engine starts and should never be depressed when the engine is running or serious damage may result.

Accelerator Pedal. The accelerator pedal, located to the left of the starter pedal (fig. 9), is used to open and close the carburetor throttle valve.

Clutch Pedal. On models equipped with 3-, 4- and 5-speed transmissions the clutch pedal is conveniently located for use by the driver's left foot (fig. 9). It is used to engage and disengage the clutch, thereby connecting the engine to or disconnecting it

from the transmission and drive line to rear wheels.

NOTE: Never drive with the foot resting on the pedal as this produces undue wear on the throwout bearing and other parts.

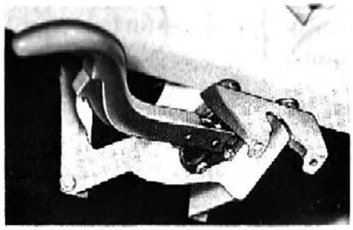


Fig. 10—Parking Brake

Brake Pedal. The brake pedal is located to the right of clutch pedal (fig. 9). Depressing this pedal applies the service brakes at all wheels in proportion to the pressure applied on the pedal.

Parking Brake. On all models equipped with Hydra-Matic, Powermatic, 4-speed or 5-speed transmission (except ½ ton and Forward Control 2 ton), the parking brake is applied by a hand type lever extending up through the floor. On 2 ton Forward Control models a lever with toggle lock action is used. On all other installations the parking brake is applied by a trigger type lever mounted on the steering column support under the instrument panel (fig. 10).

The parking brake lever is connected to the rear wheel brakes on ½ ton models and ¾ ton models with standard 3-speed transmission, and to a propeller shaft brake on all other models. The propeller shaft brake is either a band-type or shoe-type depending on the model and transmission option.

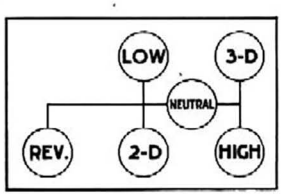


Fig. 11—Four Speed Transmission Shifting Diagram

Gearshift Lever (4- and 5-speed Synchromesh Transmission) extends to the left and back from transmission cover dome at center of floor (fig. 2). This lever is used to shift the transmission gears to the desired position. Figure 11 shows the lever knob positions when the 4-speed transmission is in neutral, reverse and the four forward speeds. The shifting diagram for the 5-speed transmissions are marked on the gearshift lever knob.

Gearshift Lever (3-speed Synchromesh Transmission). Gearshift control on trucks with 3-speed transmission is located on the steering column (fig. 1).

Figure 12 shows the gearshift pattern in neutral, reverse and three forward speeds.

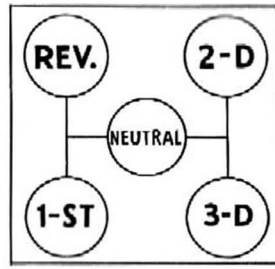


Fig. 12—Three-Speed Transmission Shifting Diagram

Shift Control Lever (Hydra-Matic Transmission). The shift control lever, located on the steering column, is used to select neutral, one of three forward speed ranges, or reverse. These positions are plainly marked on indicator segment and are described in further detail on pages 17-22.

Shift Control Lever (Powermatic Transmission). The shift control lever located on the transmission tower (fig. 2) is used to select neutral, one of four forward speed ranges, or reverse. These positions are marked on the top of the tower and are described in further detail on pages 17-23.

General Controls

Cowl Ventilator Control Knobs. Two knobs located below the instrument panel to the right of the steering column (figs. 1 and 2) are used to open and close the dampers in the ventilating system. Pull knob out to admit outside air, push knob in to shut off air.

Cigarette Lighter. The cigarette lighter on models equipped is located to the left of the hand throttle control and is operated by pushing in. When heated it automatically clicks out for use.

Ash Tray. A convenient tilt type ash tray is located in the instrument panel to the right of the instrument cluster (fig. 13). The tray is opened by pushing it forward at the bottom. To remove the ash tray for emptying, depress the circular snuffer at top of tray.

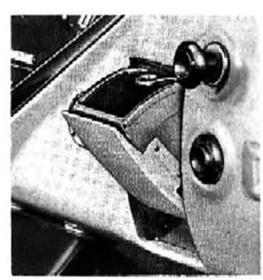


Fig. 13—Ash Tray

Instrument Panel Compartment Lock. The door to the convenient package compartment at the right end of instrument panel is controlled by a lock on the compartment door

Fig. 14—Package Compartment Lock

(fig. 14). When the lock is unlocked, depressing the lock cylinder releases the latch and the door opens. When the lock is locked the cylinder cannot be depressed. The key used for the door lock and ignition switch is used to lock and unlock the package compartment.

Keys. Two identical (octagonal head) keys are furnished with each truck. These keys are used for locking and unlocking the right door, the package compartment and ignition. The key number is stamped on a "knockout" plug in each key (fig. 15). The dealer and the owner should make a record of this number so that the key can be easily replaced in case it is lost, and then the "knockout" plug should be removed so that unauthorized persons cannot obtain the key number and have a duplicate made.

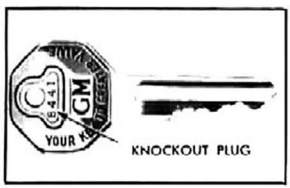


Fig. 15—Key

Door Locks. Chevrolet trucks are equipped with push-button theft-resisting door locks which provide a means of locking the cab when the truck is to be left unattended and a means of locking it from the inside.

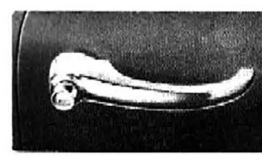


Fig. 16—Door Handle and Push-button Lock

The door lock cylinder is located in the push button in the left door handle (fig. 16). In the unlocked position, the key slot is vertical, and, when the push-button is locked, the slot is horizontal. In this horizontal postion, the push-button cannot be depressed. The door is locked from outside by inserting a key in the push-button and turning it 90° so that key is horizontal. It remains horizontal after the key is removed.

To lock either door from the inside it is only necessary to move the inside remote control handle forward, (fig. 17). Pulling the inside handle to the rear unlocks the door even when it has been locked with a key.

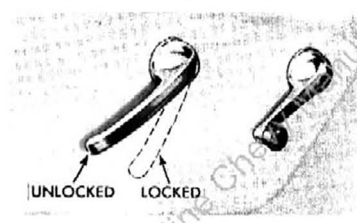


Fig. 17—Door Remote Control and Window Regulator

Window Regulators. The door windows are opened and closed by turning the window regulator handles located near the front

upper corner of each door inner panel (fig. 17).

Door Ventipane. Operated directly by a turn down catch handle. Spring loaded friction device in the ventilator lower pivot holds the ventilator open to any position selected. Rain deflectors are used over the ventipane.

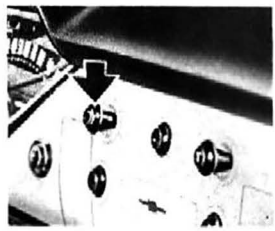


Fig. 18—Windshield Wiper Control Knob

Windshield Wiper. Start wiper by turning knob clockwise. Full clockwise turn provides faster wiper action. Turning knob counterclockwise provides slower speed and full counterclockwise turns wiper off. Electric wiper switches have three positions—OFF, SLOW AND FAST. **CAUTION: In icy weather, never attempt to operate electric wipers if the blades are frozen to the windshield. Free the blades first.**

Rear View Mirror. An adjustable rear view mirror is mounted on the forward edge of the left door at the belt line.

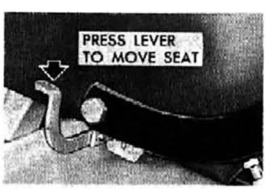


Fig. 19—Seat Adjuster

Seat Adjuster. The entire seat assembly can be moved forward or back to obtain the most comfortable position for the driver. As the seat is moved forward it raises and tips forward and as it is moved back it is lowered to accommodate a tall person.

Press down on the lever (fig. 19) to release the seat adjuster lock so that the seat assembly can be moved forward or back as desired. One coil spring assists in moving the seat forward.

Hood Lock and Safety Catch. The hood is of the "alligator jaw" type and is held closed by a lock at the front. This lock can be released by reaching in below the upper grille bar in line with the left end of name plate and pull the lever forward (fig. 20), the hood may then be lifted.

Fig. 20—Hood Lock Release

To close the hood, lower it to the safety latch position and then push down on nose of hood to lock it. When the truck is in motion the cam-type lock permits only downward movement of the hood with a wedging action that provides positive locking from the intermediate to the completely closed positions.

FORWARD CONTROL UNITS

Three Forward Control Chassis are available in the Chevrolet line in ¾ ton models on 104", 125" or 137" wheelbase. In addition, these three chassis and two 2 ton chassis on 130" or 154" wheelbase are available for units built by other body manufacturers.

FOUR WHEEL DRIVE VEHICLES

Four wheel drive installations consisting of a transfer case, a steering and driving front axle with constant velocity type universal joints, a single control lever and conventional propeller shaft components are available for 3100, 3600 and 3800 models with four speed transmission (fig. 21).

The control lever located to the right of the transmission control is used to shift the transfer case from direct 2 or 4 wheel drive to low four wheel drive at a ratio of 1.87 to 1, thus eight forward speeds and two in reverse are provided.

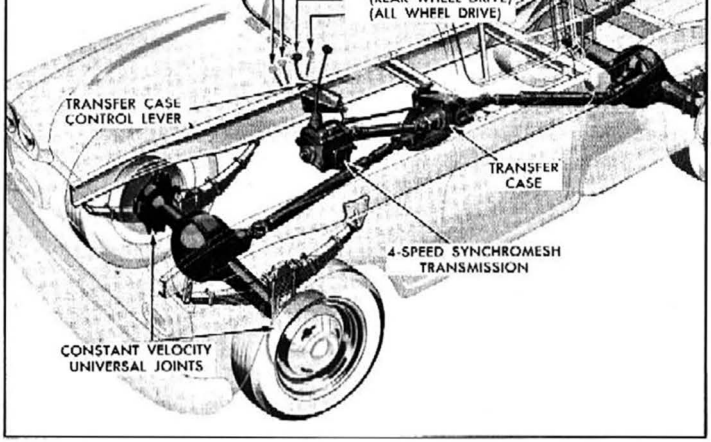


Fig. 21—Four Wheel Drive Components

PRE-STARTING INSPECTION

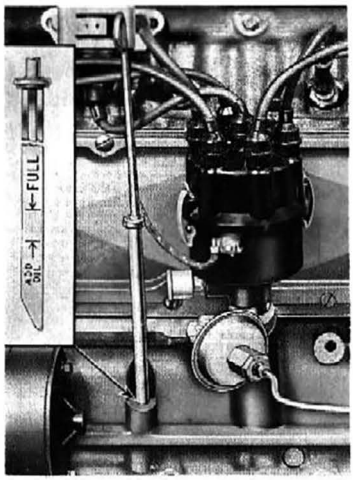


Fig. 22—Oil Gauge Rod—6 Cyl. Engine

The following inspections are not necessary each time the vehicle is started providing the driver has recently driven the vehicle and is **certain** that attention is not required.

1. Raise the hood, remove the oil gauge rod (fig. 22), wipe oil from rod with clean cloth and replace. Remove gauge rod and note level of oil. If down to the "add oil" mark, oil should be added. See "Lubrication Instructions." Install oil gauge rod.

2. Remove radiator cap and check the level of coolant. If coolant is down a quart or more, water or anti-freeze should be added.

3. Check to make sure the tires are properly inflated. Underinflated tires wear rapidly and are subject to road damage.

4. Rear window, windshield, headlights, tail lamps and reflectors should be cleaned to provide clear vision and good lights.

OPERATING INSTRUCTIONS FOR MODELS EQUIPPED WITH 3-, 4- AND 5-SPEED TRANSMISSIONS

Starting the Engine

1. Place ignition key in switch and turn key clockwise to "ON" position to turn on ignition.

2. Pull choke knob out part or all the way depending on climatic conditions to provide an engine speed just above idle.

NOTE: Depressing accelerator pedal while pulling knob will allow knob to pull easily.

If the engine is warm or in summer weather it is not generally necessary to use the choke at all. In extremely cold weather the choke should be pulled all the way out.

3. Make sure the transmission shift lever is in neutral. Depress the clutch pedal to relieve the load in the transmission.

4. Step on starter pedal, or turn key clockwise, to crank engine. **Release starter pedal or key as soon as engine starts.**

If engine does not start in 5 to 10 seconds, release pedal or key and check to see that the above operations have been performed correctly.

5. As soon as engine starts, push choke knob in part way and adjust throttle for smooth idle.

6. Note oil gauge and ammeter readings. Ammeter should show some charge unless engine is idling slowly. Oil gauge should show some pressure. In unusually cold weather the oil gauge needle may go over nearly to 60. If so, run the engine just above idling speed until the indicator hand drops to around the center of the gauge before driving vehicle. The choke knob should be pushed in all the way as soon as the engine is sufficiently warmed up.

Shifting Tandem Axle Power Divider and Auxiliary Transmission

NOTE: When equipped with Powermatic transmission, use the Power Divider as a range transmission. Let Powermatic select the shift points. Do not attempt to shift divider when vehicle is under way unless Powermatic is in 6th gear.

Control levers for the Power Divider and Auxiliary Transmission are located to the right of the brake hand lever in the cab (fig. 2). The lever at the extreme right is used for shifting gears into direct, underdrive or puller drive ratio. The other lever is the declutching lever for engaging or disengaging the rearmost axle. When the declutching lever is moved to the rear the gearshift lever will be moved out of the puller ratio position.

To shift from single axle drive to dual axle drive, move the declutching lever forward. To shift from dual axle drive to single axle (forward axle) drive, move the declutching lever to the rear.

To shift auxiliary transmission gears operate the shift lever and clutch pedal the same as in shifting any auxiliary transmission. Move the gearshift lever all the way to the right and forward for puller ratio, move lever all the way to the left and rear for underdrive ratio, or move lever all the way to the right and rear for direct ratio. When this lever is moved to puller position, the rear axle engages automatically and the declutching lever will be moved forward.

Shifting Two-Speed Rear Axle

The control for the two-speed axle shift is located on the gearshift lever (fig. 23). Operating this control also shifts the

speedometer adapter to maintain reasonably accurate speedometer and odometer reading regardless of the axle ratio used.

To shift axle only from low speed to high speed, move control to high speed position, release accelerator, pause a second to allow engine speed to drop down, then again step down on the accelerator.

To shift from high speed to low speed, move control to low speed position, hold accelerator down and depress and release clutch pedal as quickly as possible.

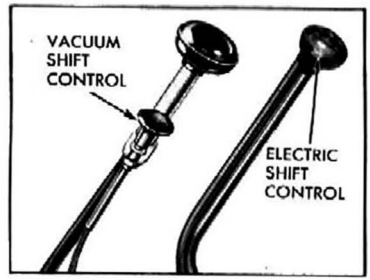


Fig. 23—Two-Speed Axle Shift Control

To split shift axle and transmission together: **From high to low axle,** shift transmission then move axle control to low position before engaging clutch; **From low to high axle,** move axle control to high position then shift transmission.

Operating instructions are shown on a "Decal" on the upper surface of the instrument panel.

Shifting Four Wheel Drive

Transfer Case Control lever positions (fig. 24), are shown on a decal on the instrument panel.

CAUTION: Do not use ALL WHEEL DRIVE, either DIRECT (4) or LOW (4-L) on dry hard-surfaced roads. Use LOW ALL WHEEL DRIVE (4-L) for off-the-road operations only when DIRECT ALL WHEEL DRIVE (4) does not supply enough power to keep truck moving.

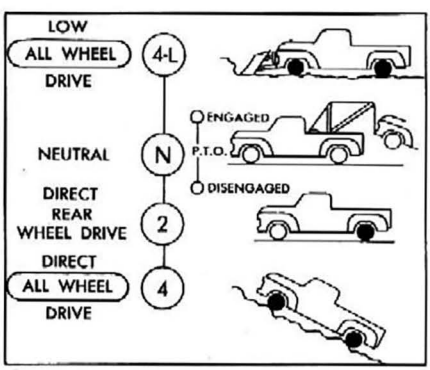


Fig. 24—Four Wheel Drive Shifting

If equipped with free-wheeling hubs, do not use Low All Wheel drive unless hubs are in the "Lock" position. Engagement and disengagement of free-wheeling hubs is a manual operation which must be performed at each front wheel.

To shift from NEUTRAL with truck stopped, depress clutch pedal and move lever all the way into the desired position:

Forward for LOW ALL WHEEL DRIVE (4-L); Rearward one position for DIRECT REAR WHEEL DRIVE (2), or full rear for DIRECT ALL WHEEL DRIVE (4). Shift transmission as required.

To shift from DIRECT REAR WHEEL DRIVE (2) at any speed, forward or reverse, move lever all the way to the rear without decutching.

CAUTION: DO NOT MAKE THIS SHIFT ON DRY, HARD-SURFACED ROADS. DO NOT SHIFT INTO NEUTRAL WITH TRUCK MOVING.

To shift from DIRECT ALL WHEEL DRIVE (4) at any speed, forward or reverse, momentarily release accelerator pedal to relieve torque on gears, then move lever forward one position. DO NOT OVERSHIFT INTO NEUTRAL.

To shift into NEUTRAL, bring truck to a complete stop, depress clutch, shift transmission to neutral and move transfer case lever to neutral.

Towing Four Wheel Drive

Truck can be towed at speeds not exceeding 20 mph for distances up to 10 miles by placing transmission and transfer case in neutral. For greater distances, disconnect propeller shafts from axles.

OPERATING INSTRUCTIONS FOR MODELS EQUIPPED WITH AUTOMATIC TRANSMISSION

Hydra-Matic Shift Control Lever

The shift lever located just below the steering wheel can be moved to select neutral, one of three forward speed ranges, or reverse. These positions, which are plainly marked on the indicator segment (fig. 25), are utilized as follows:

Fig. 25—Hydra-Matic Indicator—Neutral Position

N—Neutral (and starting)

1-4—Normal forward driving

1-3—For faster acceleration and in congested traffic

1-2—For controlled power

R—Reverse (and parking)

Powermatic Selector Control Lever

The control lever mounted on the transmission tower can be moved to select neutral, one of four forward speed ranges, or reverse. These positions, which are plainly marked on the tower (fig. 26) are utilized as follows:

R—Reverse.

N—Neutral (and starting).

3-HI—Normal forward driving.

3-5—For downhill speed control and city traffic performance.

3-4—For heavy pulling, congested traffic and descending long grades.

LO-2—For starting extra-heavy loads, and ascending or descending extremely steep grades.

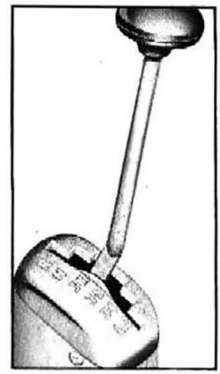


Fig. 26—Powermatic Control Lever

Powermatic fluid temperature warning light.

A red light on the instrument panel should light while the starting motor is operating (checks the operation of the bulb). This light will light when transmission fluid is heated by retarder application. When lighted, release retarder pedal momentarily to allow fluid to cool.

Starting Engine

1. Place control lever in "N" (figs. 25 and 26). Starter will not operate with lever in any other position.

2. Place ignition key in switch and turn key clockwise to turn on ignition.

3. Pull choke knob out part way or all the way, depending on climatic conditions, to provide an engine speed just above idle. If the engine is warm or in summer weather, it is not generally necessary to use the choke at all. In extremely cold weather the choke should be pulled all the way out.

4. Engage starter. Release starter as soon as engine starts. Avoid racing engine during warm-up.

5. Push choke knob in part way as soon as engine starts and adjust throttle for smooth idle.

NOTE: If engine does not start in five to ten seconds release starter and check to see that operations have been performed correctly. A possible cause may be flooding. See page 24 for procedure to be used in case of flooding.

6. Note oil gauge and ammeter readings. Ammeter should show some charge unless engine is idling slowly. Oil gauge should show some pressure. In unusually cold weather the oil gauge needle may go over nearly to 60. If so, run the engine just above idling speed until the pressure drops to around the midpoint of the gauge before driving vehicle. Refer to page 20 for procedures when pushing vehicle to start engine. The choke knob should be pushed in all the way as soon as the engine is sufficiently warmed up.

Moving and Stopping

Engine should be warmed-up to operating temperature at idle speed with lever in "N" position, particularly in cold weather. With a cold engine the vehicle may tend to creep when placed into a drive position while running at fast idle. A slight application of brake will hold vehicle until motion is desired. With the lever placed into any of the forward drive positions, the vehicle will move forward when accelerator is depressed. The shift events will occur at progressively higher speeds, depending upon accelerator pressure. With slight accelerator pressure, the shifts occur at lower speeds. As accelerator pedal is depressed, shifts occur at higher speeds.

To stop the truck, release the accelerator pedal and apply brakes. Do not move the lever from range selected. When ready to move again, release brakes and depress accelerator pedal as desired.

Reversing

While it is advisable to be at a complete stop before engaging reverse, it is possible to shift into "R" (figs. 27 and 28) while vehicle is in slight (1 to 2 mph) forward motion. Avoid engaging reverse at forward speeds above 1 to 2 mph. This permits moving the lever between "R" and any forward range with light accelerator pedal pressure, permitting rocking the vehicle when required to get out of mud, snow, or sand. With Hydra-Matic raise the lever when moving to reverse. When moving the lever, while raised, from reverse toward neutral, the lever will stop at the "1-4" position. This

Fig. 27—Reverse Position (Hydra-Matic)

prevents unwanted "over-selecting" into neutral.

Standing and Parking

Under no circumstances should the control lever remain in any other position than neutral when driver leaves the vehicle with engine running. In this case, always apply parking brake.

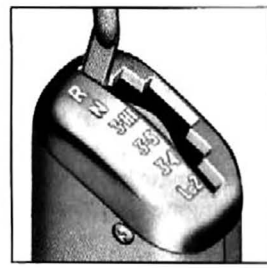


Fig. 28—Reverse Position (Powermatic)

When parking ½ and ¾ ton Hydra-Matic equipped trucks, turn off ignition key, then move lever to reverse position. This permits engagement of transmission providing "In Gear" parking. When parking on any decline in this manner, hold vehicle with brakes for a few seconds to permit engagement of transmission parts.

When parking 1 and 1½ ton Hydra-Matic equipped trucks, **use parking brake only.** Reverse lock parking is not recommended due to the heavier G.V.W.

With Powermatic no "In Gear" parking is provided and hand brake must be firmly applied.

Push Start

If necessary to start engine by pushing a short distance, operate hand choke as described on page 18, then move lever to "N" (Neutral) position. When vehicle speed reaches approximately 20 mph, turn on ignition switch and move lever to normal drive range position.

Towing Vehicle

Truck must be towed only with rear wheels off the ground or propeller shaft disconnected at axle pinion shaft.

If truck is towed with rear wheels on ground with propeller shaft connected, transmission will be damaged.

Coasting

Do not coast with lever in "N" (Neutral). Operating the vehicle in this manner may result in damage to the transmission.

DRIVING WITH HYDRA-MATIC

Operating in "1-4" Range (Automatically shifts from 1st thru 4th).

The "1-4" Range (fig. 29) is used for normal forward driving, providing reduced engine speeds, and better driving com-

fort and fuel economy. With normal* truck speed, a needed spurt of "passing" or "pick-up" speed can be obtained by depressing the accelerator completely (past detent). The drive will then change to a lower speed for a rapid pick-up, and will return automatically to higher speed as truck speed is increased.

Fig. 29—Operating in "1-4" Range

Operating in "1-3" Range (Automatically shifts from 1st thru 3rd)

The "1-3" Range (fig. 30) is used for better acceleration when driving in congested traffic. This range may also be used when ascending or descending long grades. At normal* truck speed, a forced down shift to lower speed can be obtained by completely depressing accelerator pedal. Shift again to higher speed will automatically be made as truck speed increases or accelerator is released. Shift can be made from "1-4" to "1-3" at any truck speed on dry roads or from "1-3" to "1-4" at any time.

Fig. 30—Operating in "1-3" Range

*The speeds at which a forced downshift can be made in "1-4" and "1-3" ranges vary according to tire sizes and axle ratios.

Operating in "1-2" Range

The "1-2" Range (fig. 31) is used for pulling through mud, sand and snow, for going up grades or to provide braking on down grades. This position should also be used to place vehicle in motion on icy roads. When in this range the ¾, 1 and 1½ Ton Models start in 1st speed while the ½ Ton Models start in 2nd speed under light and medium throttle. At a truck speed of less than 25 mph, the shift from "1-4" or "1-3" range to the "1-2" range may be made to obtain braking by first **releasing the accelerator,** then moving the lever to the "1-2" position.

Fig. 31—Operating in "1-2" Range

CAUTION: Do not change from "1-4" or "1-3" position to "1-2" on icy or slippery roads while under way.

A forced downshift to 1st speed can be made while in "1-2" position with vehicle speed less than 5 mph. Completely depress accelerator pedal. Shift again to 2nd speed will automatically be made when vehicle speed increases or pedal is released.

DRIVING WITH POWERMATIC

Operating in "DRIVE" Range—3-HI (Automatic Operation from Converter through third, fourth, fifth and sixth gears).

The "Drive" Range (3-HI) is used for normal starting and operating and is most satisfactory for truck operation. At engine idle the truck remains standing. Upon opening the throttle, the response is immediate. The transmission starts in converter and continues progressively and automatically into lockup and through the four gear ratios in this range. The driver determines the rate of acceleration by the pressure he exerts on the accelerator pedal. If at any time during the shift cycle, the situation demands sudden acceleration or extra pulling power, a rapid downshift is accomplished by pushing the accelerator pedal through the "detent" resistance.

The transmission will remain downshifted as long as the driver holds pedal past detent, and may downshift further but will not upshift until the pedal is slightly released to the detent position.

CAUTION: Do not shift from "3-HI" to "3-5" above 50 mph or with hydraulic retarder in operation.

Operating in "DRIVE" Range "3-5" (Automatic operation from Converter through third, fourth and fifth gears).

"3-5" range is used for greater flexibility in downhill speed control and extra convenience in city traffic. This range performs in the same manner as "3-HI" range but upshifts are limited to fifth gear so frequency of automatic downshifts in city traffic is reduced.

CAUTION: Do not shift from "3-HI" or "3-5" to "3-4" above 30 mph, or with hydraulic retarder in operation.

Operating in "3-4" Range (Automatic operation from Converter through third and fourth gears).

The "3-4" range is the performance range for heavy pulling, congested traffic operation and descending long grades. In

operation, this range performs in the same manner as "3-HI' range but upshifts are limited to fourth gear.

CAUTION: Do not shift from "3-HI", "3-5" or "3-4" to "LO-2" above 15 mph or with hydraulic retarder in operation. Do not attempt this shift while under way on icy roads.

Operating in "LO-2" Range (Automatic operation from Converter through first and second gears).

The "LO-2" range is the extra-heavy-duty range for starting extra heavy loads, and ascending or descending extremely steep grades. The throttle position and vehicle speed control the shift pattern. This range is required only for extreme operating conditions.

Operating the Hydraulic Retarder.

The hydraulic retarder may be used in any range. To apply the retarder, depress the floor pedal (left of steering column) and hold down as long as needed or until red warning light on dash goes on, then release pedal momentarily.

CAUTION: Do not apply hydraulic retarder while making manual shifts.

COLD WEATHER OPERATION

Cold weather presents many problems to the motoring public; however, the Chevrolet truck will be equally dependable in cold weather if given a minimum amount of attention.

1. The cooling system must be protected against freezing by the use of anti-freeze solutions or drained when not in use (see "Cooling System" in Chapter II).

2. Light oil should be used in the engine (see "Engine Lubrication").

3. The battery should be kept fully charged to provide the additional power necessary to crank a cold engine and furnish a good spark. A discharged battery will freeze in extremely cold weather which will make battery replacement necessary.

4. The carburetor, fuel pump and fuel tank should be kept free from water which will freeze and restrict fuel flow.

5. The ignition system should be kept in good condition.

6. Assuming that the above items have been given normal attention, the engine should start promptly, even in extremely cold weather, by following the simple procedure described on page 14 for models equipped with conventional transmissions or page 18 for models equipped with automatic transmissions. In abnormally cold weather the engine should be

run slightly above idling speed for a few minutes to warm up the oil before driving the truck.

NOTE: Never race the engine until the oil gauge needle will stay around the midpoint of the gauge.

HOT WEATHER OPERATION

Hot weather does not generally present as many problems as cold weather; however, a little special attention will pay dividends in the form of economy and convenience.

1. Check the radiator regularly for sufficient coolant as the rate of evaporation is higher in hot weather.
2. Make sure the fan belt is in good condition and properly adjusted.
3. Keep the radiator area free of bugs and other things that restrict air circulation.
4. Have the water level in the battery checked at 10-day intervals or oftener, if necessary.
5. Starting a cool engine in hot weather does not present a problem and the procedure outlined under "Starting the Engine" should be followed.

A hot engine is easily flooded and may start hard. If the carburetor is flooded proceed as follows:

a. Turn on ignition.
b. Pull hand throttle knob out about ½".
c. **Do not** pull choke knob out or step on accelerator.
d. Engage starter without depressing accelerator.
e. When engine starts, release starter, but do not accelerate engine.

CHAPTER II

DESCRIPTION, CARE AND MAINTENANCE

PREVENTIVE MAINTENANCE

The following table will indicate some of the things which should be done at regular mileage intervals to assure your receiving the maximum in performance and economy.

Mileage	Lubricate Chassis *	Change Oil †	Clean Air Cleaner	Clean Spark Plugs	Cross-Change Tires	Tune Engine	Complete Inspection By Dealer	Pack Front Wheel Bearings	Adjust Brakes
1000	o	o					o		
2000	o								
3000	o	o							
4000	o								
5000	o	o	o	o	o	o	o		o
6000	o								
7000	o	o							
8000	o								
9000	o	o							
10000	o		o	o	o	o	o	o	o

After 10000 miles, repeat above schedule starting with 1000 mile operations at 11000, 21000, 31000 miles, etc.

Change Powermatic Transmission Oil (see page 83).

Change Hydra-Matic Transmission Oil every 25000 miles. Adjust bands at the first 1500 mile interval and every 10000 miles thereafter.

For maintenance instructions, see "Transmission," in Chapter III.

***For complete instructions, see Charts in Chapter III.**

†Also change oil filter element if vehicle is so equipped. For complete recommendations on changing oil and proper grade of oil to use, see Chapter III.

The following operations should be done as indicated:

Period	Check Battery	Check Air in Tires	Flush Cooling System	Install Fresh Anti-Freeze
Weekly	o	o		
Spring			o	
Fall			o	o

ENGINE

The Chevrolet valve-in-head truck engines are the prime factor in Chevrolet's outstanding performance and economy. They are designed to give long trouble-free life. Chevrolet's full-pressure lubrication system provides the correct amount of lubrication to all moving parts.

Full stroke length water jackets, surrounding all cylinders, provide uniform cooling and prevent cylinder distortion which would cause undue wear and poor oil economy. The water passages in the cylinder block and cylinder head properly direct the flow of water to provide uniform cooling of the engine.

Care. The engine oil level should be checked each time fuel is purchased and oil added when necessary. (See Lubrication Section.) The engine should be inspected occasionally for oil and water leaks and the necessary repairs made. Keep the engine clean externally.

Valve Tappet Adjustment. Valve tappet adjustment on 6-cylinder engines should be checked when the engine is thoroughly warmed up, preferably when the truck comes in from a run or after the engine has been run at a fast idle for 30 minutes.

Check the clearance between the rocker arms and the valve stems with a feeler gauge (fig. 32). The valve clearances on 6 cylinder engines should be as follows:

Model	Intake	Exhaust
½, ¾ and 1 Ton	.006	.018
1½ and 2 Ton	.006	.020

The V-8 engines have hydraulic lifters and no adjustment is required.

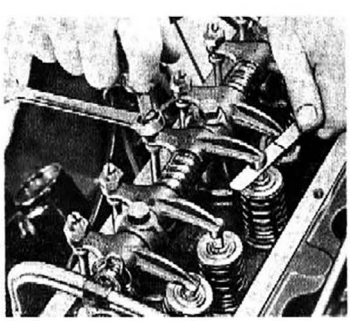


Fig. 32—Valve Tappet Adjustment—6 Cyl. Engine

CARBURETOR

Downdraft Carburetor. The downdraft carburetor used on all 6-Cylinder Chevrolet trucks except ¾ ton Forward Control models, is comparatively simple in design and construction and requires very little care or attention. This carburetor has a vacuum controlled power jet and a throttle operated accelerator pump to aid in providing the desired economy and performance.

Updraft Carburetor. The updraft carburetors used on the ¾ ton Forward Control trucks are mounted below the manifold. They are equipped with a vacuum controlled power jet and a throttle operated accelerating pump to aid in providing the desired economy and performance.

Eight Cylinder Model Carburetor. The 2 barrel and 4 barrel carburetors used on heavy-duty eight cylinder models are equipped with the vacuum operated portion of the spinner governor.

Care. Tighten the carburetor to manifold and the manifold to cylinder head stud nuts to prevent air leaks. Keep the carburetor clean externally and have it completely overhauled at regular intervals so that foreign matter in the carburetor and worn parts will not affect correct carburetion.

Maintenance—Downdraft Carburetor. There are but two adjustments on the carburetor, one for idling mixture and the other for idling speed. These adjustments should be made together as changing the adjustment on one affects the other.

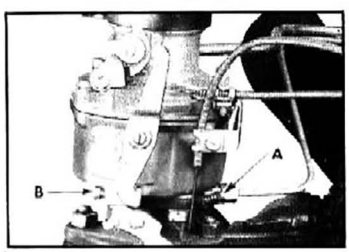


Fig. 33—Downdraft Carburetor Adjustment

Run engine until it reaches normal operating temperature. Push choke knob in all the way. Turn idling mixture adjusting screw "A" (fig. 33) in clockwise until it lightly contacts stop, then back it off 1 to 2½ turns. Let engine idle at 450 to 500 revolutions per minute and turn idling mixture adjusting screw "A" in or out as necessary to obtain a smooth idle.

Before adjusting idling speed make sure hand throttle knob and choke knob are pushed in all the way and accelerator and throttle linkage is free so that throttle lever stop screw "B" (fig. 33) is against stop. Turn screw "B" in or out to obtain an idling speed of 450 to 500 rpm. If necessary readjust idling mixture screw "A" as explained above to obtain a smooth idle.

On automatic transmission models, adjust to idle speed of 400-450 rpm with shift lever in "N" position.

Maintenance—Updraft Carburetor. Warm up engine to normal operating temperature and make sure choke and throttle knobs are in all the way. Adjust the engine speed to 450 to 500 rpm on conventional transmission models and 400-450 rpm with shift lever in "N" on Hydra-Matic models by turning the throttle stop screw "B" in or out as desired (fig. 34).

Turn the idle mixture adjusting screw "A" in or out as necessary to provide a smooth idling mixture. If the carburetor is in good condition the best idling mixture should be obtained with the idling mixture screw between ½ and 1½ turns open.

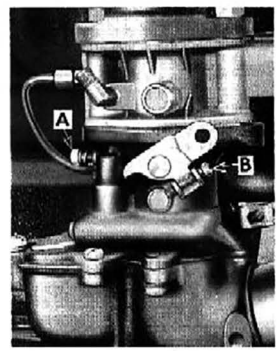


Fig. 34—Updraft Carburetor with Governor

Maintenance—Eight Cylinder Model 2 and 4 Barrel Carburetor. Warm up engine to normal operating temperature and make sure choke and throttle knobs are in all the way. Connect tachometer and vacuum gauge and adjust idle speed to give 475 rpm. Adjust each idle mixture screw separately to give peak vacuum and rpm indications on tachometer and vacuum gauge.

CAUTION: Do not turn idle mixture screws tightly against stop or damage to needle seat will result.

If necessary, readjust engine idle to 475 rpm and readjust idle mixture.

AIR CLEANER

Oil bath cleaners on all truck models operate primarily to remove dust and dirt from the air before it is taken into the carburetor and engine. All air cleaners used incorporate flame arresters.

Maintenance—The oil level in the air cleaner reservoir should be checked at regular intervals and sufficient S.A.E. 50 oil

added in summer and lighter oil added in winter. Adding oil and servicing the cleaner will vary greatly, depending upon operating conditions. Experience will tell when these services should be performed. Servicing of this cleaner, an important operation, must be performed as follows:

Remove air cleaner assembly and remove cover and filter element assembly (fig. 35).

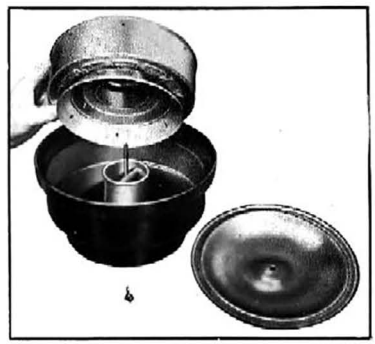


Fig. 35—Servicing Air Cleaner

Empty the oil out of the cleaner reservoir and clean out all accumulated dirt. Wash filter element by slushing it in cleaning solvent until all foreign matter is removed and dry thoroughly. Wash cleaner body in cleaning solvent and wipe dry. Fill the oil reservoir to the oil level mark with S.A.E. 50 oil in summer and a lighter grade in winter.

Reassemble the filter element to the cleaner, being sure that the flange seats properly against the cleaner body. Install the cover, making sure that the gasket is clean and in good condition.

Install the cleaner making sure that it fits tight and is retained securely with no air leaks.

CRANKCASE FILLER AND VENTILATOR

All 6-cylinder engine models are oil filled through the valve rocker cover. Crankcase ventilation is accomplished through a ventilator tube assembly located at the lower right side of the cylinder block on all except Forward Control and 2 ton models.

All V-8 engine models are oil filled through a combined oil filler and ventilator tube assembly located at the front of the intake manifold.

Forward Control, 2 ton and heavy-duty V-8 engine models are equipped with a positive ventilation system which incorporates a variable opening ventilator valve to regulate the amount of crankcase ventilation to meet changing operating conditions. Have this unit cleaned by an Authorized Chev-

rolet Dealer at regular intervals of 10,000 miles or less, depending on operating conditions.

FUEL PUMP AND STRAINER

Fig. 36—Fuel Pump

The fuel pump is mounted on the right side of engine (fig. 36) and is operated by an eccentric on the engine camshaft. It pumps fuel from the fuel tank and delivers it to the carburetor. A fuel strainer is located in the fuel tank at the end of the pick-up pipe.

Care. The fuel pump should be checked regularly to make sure the mounting bolts, cover to body bolts, pulsator diaphragm cover screws and inlet and outlet connections are tight.

GOVERNOR

Governors are standard equipment on 2½ ton models and on the 1½ ton and 2 ton school buses. They are also available on other models as special equipment when the truck is ordered, or through the dealer's service department.

The 6-cylinder engine governor is installed between the carburetor and the intake manifold (fig. 37) and automatically governs the speed at which the engine and truck may be operated. The adjusting cap is locked with a seal which should be left in place or a new seal installed when adjusting the engine speed as this is the only protection against tampering by unauthorized persons.

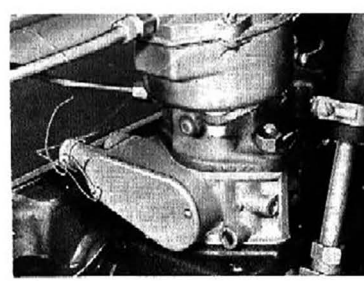


Fig. 37—Governor (6 Cylinder Engine)

The V-8 engine governor consists of two primary units, one of which is the centrifugal control valve built into the ignition distributor. The other unit is a vacuum operated diaphragm which is part of the carburetor and is linked to the throttle.

Care and Maintenance. The attaching bolts should be kept tight, the governor should be kept clean externally and the filter element should be replaced every 10,000 miles. If the governor requires other service attention the truck should be taken to an authorized service station.

IGNITION SYSTEM

The ignition system consists of the ignition switch to open and close the circuit, the coil to induce high voltage, the resistor which prevents excessive primary current at low temperatures, the distributor to make and break the low tension circuit and distribute the high tension current, 14-millimeter spark plugs to provide the spark in the combustion chamber and the necessary wiring (fig. 38). The battery is the source of current for the ignition system when starting the engine or operating at idling speed. The generator furnishes the ignition current at higher speeds.

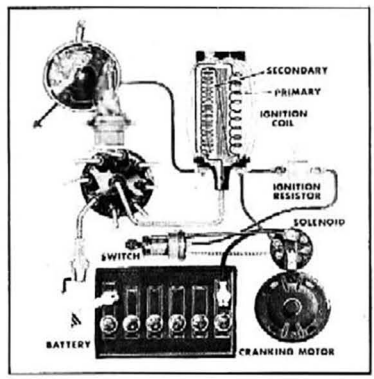


Fig. 38—Ignition Circuit

The distributor mounting provides a means of properly setting the initial ignition timing. The spark advance for various speeds and loads is controlled automatically by governor weights and vacuum control in the distributor. The vacuum control is connected to the carburetor.

The octane selector at the rear of the distributor mounting on six cylinder engines provides a means of advancing or retarding the ignition timing for the grade of fuel being used.

Care. The battery and generating system must be kept in good operating condition. All wiring connections in the ignition circuit should be kept tight and free from dirt and corrosion. Keep the high tension wires tight and free from grease.

DISTRIBUTOR POINTS. Correct distributor point gap is very important. The distributor points are cleaned and adjusted as part of a good engine tune-up. If their condition is questioned, release the distributor cap clamps, remove

cap and lift off rotor. Separate the points and inspect them for being pitted or badly burned. Clean the points with a breaker point file. If the points do not clean up with a few strokes of the file they should be replaced.

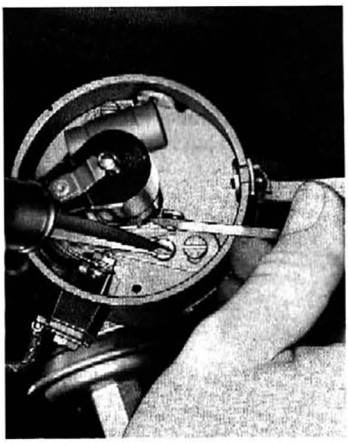


Fig. 39—Adjusting Distributor Points

Point Adjustment (6 Cylinder). Crank the engine or place transmission in high gear and rock the truck forward enough to place the movable point cam follower on the peak of cam and check the point opening, using a feeler gauge. Correct adjustment on the 6-cylinder truck engines is .019″ with new points or .016″ with used points. If necessary to adjust the points, loosen the stationary point lock screw and turn the eccentric screw as necessary (fig. 39). Tighten lock screw and recheck point opening. Install rotor, reassemble distributor cap and spark plug wires and make sure all terminals of primary wire at ignition coil and distributor are clean and tight.

Point Adjustment (8 Cylinder). Raise window in cap, turn adjusting screw clockwise until engine begins to misfire. Then turn adjusting screw one-half turn counterclockwise.

Point Replacement (6 Cylinder). In case the points require replacement, loosen the inside terminal nut at the movable point spring and lift the point out. Remove the stationary point lock screw and remove point and arm. Place the new stationary point and arm in position and install the lock screw. Place the movable point on its shaft and position the spring on the terminal behind lock clip and tighten nut securely. Adjust new points and assemble distributor as explained above.

Point Replacement (8 Cylinder). The contact point set is replaced as one complete assembly.

1. Remove two attaching screws which hold base of contact assembly in place.

2. Remove condenser and primary lead from insulated connection and remove point set.
3. Replace in reverse order and adjust as noted above.

IGNITION TIMING

6-Cyl. Engine. Set the octane selector at "0" on the scale (fig. 40), and attach a Neon Timing Light to No. 1 spark plug. Start the engine and run it at idling speed. Loosen distributor clamp and rotate the distributor body clockwise or counterclockwise until the short vertical line stamped on the flywheel (5° BTDC) lines up with the pointer on the flywheel housing. Tighten the distributor clamp screw.

Fig. 40—Octane Selector—6 Cyl. Engine

Octane Selector. When changing to a grade of fuel with a higher or lower octane rating it may be advisable to advance or retard the spark slightly. Advance the spark to take advantage of higher octane fuel and retard it to prevent excessive detonation with lower octane rated fuels. Note the position of the octane selector scale (fig. 40), loosen the clamp bolt and move the distributor assembly toward advance or retard as desired and tighten the clamp bolt securely. By adjusting the spark in this manner it can be readjusted to the original setting when desired without special ignition timing equipment.

8 Cyl. Engines. Attach a timing light to the No. 1 spark plug and spark plug wire, using an extension to make contact, and to a good ground.

CAUTION: Do not attach timing light clip directly to spark plug boot as boot may be punctured so arc-over will occur.

Start engine and run at idle with light aimed at timing tab at top of harmonic balancer. Loosen distributor clamp and rotate distributor body until the mark on the harmonic balancer lines up with the 4°BTDC mark.

NOTE: On all engines, the markings on the timing tab are in two degree increments from the "O" marking. The timing tabs are designed with the greatest number of graduations appearing to the BTDC side of the "O" marking.

Tighten distributor clamp screw and remove timing light.

SPARK PLUGS. Clean the spark plugs thoroughly, using an abrasive type cleaner and file the electrodes flat. If the porcelains are badly glazed or blistered, the spark plugs should be replaced. All spark plugs must be of the same make and number or heat range.

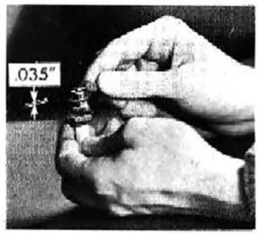


Fig. 41—Setting Spark Plug Gap

Adjust the spark gaps to .035", using a round feeler gauge (fig. 41).

CAUTION: In adjusting the spark plug gap never bend the center electrode which extends through the porcelain center; always make adjustment by bending the side electrode.

Install the spark plugs in the engine, using new gaskets.

If a tension wrench is used when installing the plugs, the proper tension is 20 to 25 foot pounds maximum. If a tension wrench is not available, screw each plug in "finger tight" and then with a wrench tighten each plug ½ to ¾ turns beyond this. A C-42-1 commercial plug is standard on 5, 6, 7, 8000 and school bus models, a 44 plug is standard on 3 and 4000 series and a C-42N commercial long reach plug is standard on 9 and 10000 series (except school bus).

MANIFOLD HEAT CONTROL VALVE. The manifold heat control valve on 6-cylinder engines is located on the inside of the exhaust manifold and is operated by the thermostatic spring, the center of which is attached to a slot in the valve shaft and the outer end bears against a stop pin on the manifold.

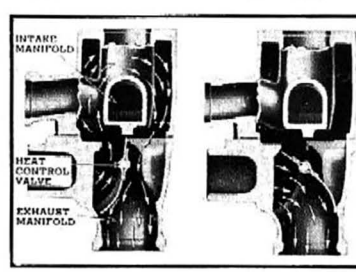


Fig. 42—Manifold Heat Valve—6 Cyl. Engine

When the engine is cold the valve is in the "heat-on" position as shown in the left half of Figure 42, and the hot exhaust gases are directed against the center of the intake manifold. As the engine warms up, the thermostatic spring moves the valve to the "heat-off" position as shown in the right half of Figure 42 and directs the exhaust gases away from the center of the intake manifold.

This thermostatic control results in maintaining the proper temperature of the incoming gases under all operating conditions.

The tension of the thermostatic spring is very important. When it is too tight the heat will not be turned off the intake heat riser as the engine warms up, with the result that the incoming gases will be expanded several times greater in volume than in normal operation and it will be impossible to get a full charge of gas and air into the cylinders.

ENGINE TUNE-UP

In order to enjoy the performance and economy which Chevrolet built into the truck engine it must be kept properly tuned. Normally this service should be performed every 5,000 miles. A thorough engine tune-up requires the use of special equipment not generally in the hands of truck owners. For this reason it is advisable to have this service performed by a Chevrolet dealer. However for the benefit of those owners who perform many of their maintenance repair operations we will outline the operations which should be given attention when tuning an engine.

Compression. Compression tests should be made before performing tune-up operations to determine the necessity for internal repairs—an engine with poor or uneven compression cannot be successfully tuned.

Spark Plugs. Remove, clean and adjust (page 34).

Battery. Check state of charge by testing specific gravity (page 62).

Battery Cables. Clean and tighten cable terminals.

Distributor. Clean and adjust distributor points. Inspect cap and rotor (page 31).

Ignition Timing. Check and adjust ignition timing (page 33).

Air Cleaner. Clean air cleaner (page 28).

Manifolds. Tighten manifold bolts to guard against intake and exhaust leaks.

Valve Clearance. Check and adjust valve lash to proper clearance (page 26).

Carburetor. Adjust idling speed and mixture (page 27).

Cooling System. Tighten all hose connections. Check fan belt adjustment and the cooling system for coolant leaks.

Road Test. After the engine is tuned the truck should be road tested for performance. During this test the octane selector should be adjusted for the grade of fuel being used. For best performance and economy the octane selector should be set to produce a slight "ping" upon acceleration at wide open throttle.

COOLING SYSTEM

The cooling system consists of the radiator, fan, water pump, thermostat, water passages in cylinder block and cylinder head, and the necessary connections and fittings. The function of the cooling system is to keep the engine at the most efficient operating temperature under all driving conditions.

The bellows type thermostat, installed at the cylinder head outlet, restricts the flow of coolant until a predetermined temperature is reached. During this restriction a water by-pass in the cylinder block of 235 cu. in. engines permits only part of the coolant to circulate through the engine. On all other engines a by-pass thermostat is used to cut off the flow of coolant to the radiator during the warm-up periods so all coolant is recirculated through the engine. On models equipped with Powermatic transmissions, coolant flows through the bottom tank of the radiator, where an oil cooler is located, to permit cooling of transmission oil if heated by retarder application during warm-up. As the coolant warms up, the thermostat operates to permit circulation through the entire cooling system. A 160° thermostat is standard on all except Model 10802 which uses a 151° thermostat.

A 7 pound pressure type radiator cap is used on 3 and 4000 series vehicles and on 5 and 6000 series with 4 or 5 speed transmission. All other series use a 9 pound pressure cap.

Care. The cooling system must be kept in good condition if it is to properly cool the engine under all operating conditions. The radiator cap should be removed and the coolant level checked frequently. If the coolant level is low, water or antifreeze should be added. All models are equipped with a pressure type radiator cap.

NOTE: The volume of solution in a Chevrolet cooling system expands about one quart when its temperature is changed from 32° to 160°; therefore, the cooling system should be left from one pint to one quart low if filled cold, especially when anti-freeze is used, to prevent loss of solution through the radiator overflow pipe.

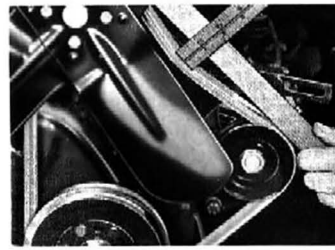


Fig. 43—Fan Belt Adjustment

The fan belt tension should be checked occasionally and, if necessary, adjusted to provide 3/8" deflection on L-6 engines, 3/4" deflection on 283 cu. in. engines or 1 3/16" on 322 and 348 cu. in engines. The up or down movement from the normal position should be measured with a 15 lb. push at a point midway between fan and generator pulleys (fig. 43).

The system should be thoroughly checked for leaks. Tighten screw type hose clamps occasionally.

Twice a year the radiator, cylinder block, and, where applicable, the automatic transmission oil cooler should be completely drained. Using a water hose the cooling system should then be thoroughly flushed until the water runs clear. Then close the drain cock; replace drain plugs and refill system with coolant.

NOTE: For complete draining, the drain cock at right front side of radiator should be opened, the drain plug at rear left side of 6-cylinder block, or at each side of the V-8 block should be removed and the plug in the Hydra-Matic transmission oil cooler inlet elbow at the front of the oil pan should be removed.

The front of the radiator core should be checked occasionally for bugs, leaves, etc., which would restrict air circulation. These can be flushed out from the back side of radiator with an ordinary water hose and city water pressure.

Maintenance

Flushing. Scale and deposits in the cooling system which will not flush out can generally be removed by using a good cooling system cleaning compound. When using a cleaning compound in the cooling system it is advisable to follow the instructions furnished with the particular brand of compound.

If cooling system cleaning compound will not thoroughly clean the system it is advisable to reverse-flush the system.

Thermostat. A faulty thermostat may cause abnormally high or abnormally low engine temperature. If the condition of the thermostat is questioned it can be removed and tested as follows:

1. Open radiator drain cock and drain out about half the coolant, which will bring the coolant level below the thermostat; close drain cock.

2. Loosen upper hose clamps and remove hose.

3. Remove the two cap screws that attach the water outlet to the thermostat housing. Remove water outlet, gasket and thermostat.

4. Heat a container of water to a temperature 25° above the temperature stamped on the thermostat and place thermostat in the water and see if it opens fully.

5. Place thermostat in water 10° below the temperature stamped on thermostat and see if thermostat fully closes.

6. If the thermostat does not fully open on test in Item 4 or fully close on test in Item 5, it should be replaced.

7. Place thermostat in housing, install water outlet using a new gasket, install attaching screws and tighten them evenly and securely.

8. Inspect the upper hose and if necessary replace it. Install the hose and tighten hose clamps securely.

9. Fill cooling system and check it for leaks.

ANTI-FREEZING SOLUTIONS. In selecting an anti-freezing solution for winter operation the local conditions and the type of service should be considered. The following information is given to assist the truck owner in selecting the anti-freezing solution best suited to meet his own individual driving conditions.

Alcohol. Denatured alcohol and methanol are used extensively for anti-freezing solutions. The various types of alcohol anti-freeze afford protection against freezing and have the advantage of wide distribution and low first cost.

There are, however, two important disadvantages. Alcohol is lost, especially on warm days and on hard driving, and, unless the solution in the radiator is tested periodically and sufficient alcohol added to replace the loss, the engine or radiator, or both, are likely to be damaged by subsequent freezing. The vehicle finish may be softened and damaged by contact with alcohol solutions or vapors. Alcohol accidentally spilled on the finish should be flushed off immediately with a large quantity of cold water without wiping or rubbing.

GM METHANOL PROTECTION TABLE

Cooling System Capacity in Quarts	Quarts of GM Methanol Required for Anti-Freeze Protection at Temperatures shown below							
	3	4	5	6	7	8	9	10
16	13°	3°	−8°	−21°	−36°	−52°		
17	14°	6°	−4°	−16°	−29°	−45°		
18	16°	8°	−1°	−12°	−25°	−38°	−52°	
19	16°	9°	1°	− 8°	−20°	−32°	−45°	
20	17°	11°	3°	− 5°	−16°	−27°	−39°	−52°
21	18°	12°	5°	− 3°	−12°	−22°	−34°	−46°
22	19°	13°	7°	0°	− 9°	−18°	−29°	−40°
23	20°	14°	8°	1°	− 7°	−15°	−25°	−36°
24	20°	15°	10°	3°	− 4°	−12°	−21°	−31°

Ethylene Glycol. Ethylene glycol is, in first cost, more expensive than alcohol. Ethylene glycol anti-freezing solutions have the distinct advantage of possessing a somewhat higher boiling point than alcohol anti-freezing solutions and, consequently, may be operated at a higher temperature, resulting in a more effective performance of the heater.

"GM Ethylene Glycol" is especially treated and compounded for use in the cooling system. Other ethylene glycol preparations are available, but only those containing suitable corrosion inhibitors and compounded for use in automotive cooling systems should be used.

GM ETHYLENE GLYCOL PROTECTION TABLE

Cooling System Capacity in Quarts	Quarts of GM Ethylene Glycol Required for Anti-Freeze Protection at Temperatures shown below								
	3	4	5	6	7	8	9	10	11
16	17°	10°	2°	−8°	−19°	−34°	−52°		
17	18°	12°	5°	−4°	−14°	−27°	−42°		
18	19°	14°	7°	0°	−10°	−21°	−34°	−50°	
19	20°	15°	9°	2°	− 7°	−16°	−28°	−42°	
20		16°	10°	4°	− 3°	−12°	−22°	−34°	−48°
21		17°	12°	6°	0°	− 9°	−17°	−28°	−41°
22		18°	13°	8°	2°	− 6°	−14°	−23°	−34°
23		19°	14°	9°	4°	− 3°	−10°	−19°	−29°
24		19°	15°	10°	5°	0°	− 8°	−15°	−24°

See Chapter IV for cooling system capacity.

A hot water heater adds about one quart to standard system capacity.

Glycerine. Radiator glycerine, which is chemically treated to avoid corrosion in accordance with the formula approved by the Glycerine Producers' Association, is satisfactory for use in the cooling system.

Other makes of anti-freeze should be diluted in accordance with the instructions issued by the anti-freeze manufacturer.

SERVICING THE COOLING SYSTEM. Before installing anti-freezing solution, the cooling system should be inspected and serviced for winter operation. The system should be thoroughly cleaned and all loose scale and iron rust removed.

Cylinder head bolts should be tightened to avoid the possibility of anti-freezing solutions leaking into the engine or exhaust gas blowing into the cooling system. Anti-freeze or water mixed with engine oil may form sludge, which will interfere with lubrication and, in some cases, may form varnish-like deposits which will cause gumming and sticking of the moving parts.

NOTE: Tightening cylinder head bolts may decrease valve clearance. Check and adjust valves if necessary (See Valve Adjustment).

It may be advisable to install new radiator and heater hose, especially when ethylene glycol or glycerine anti-freezing solutions are used. Ethylene glycol and glycerine have a tendency to shrink rubber that previously has been swollen by the absorption of water, and leaks may develop.

The water pump seal must be leak tight, not only to avoid loss of liquid, but to prevent air from being drawn into the cooling system. Aeration of the cooling liquid causes foaming and promotes oxidation which may result in serious corrosion.

After the anti-freezing solution has been installed, the entire system, including the hose connections, cylinder head gasket and pump, should be inspected regularly to insure that no leaks have developed.

The use of additional rust preventives, or inhibitors, is not recommended with "GM Anti-Freeze," "GM Ethylene Glycol," or with other anti-freeze preparations that have been chemically treated or compounded for use in automotive cooling systems.

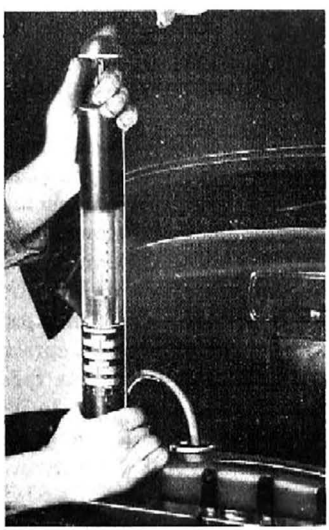


Fig. 44—Anti-Freeze Tester

Testing. Some devices, used for testing anti-freezing solutions, will indicate the correct freezing point only when the test is made at a specific temperature. Other testers, provided with thermometers and tables, indicate the freezing points corresponding to readings made at various temperatures (fig. 44). Disregarding the temperature of the solution, when tested, may cause an error as large as 30° F.

Some testing devices are made to test only one kind of anti-freezing solution. Others have several scales and may be used for the corresponding kinds of anti-freeze.

The freezing point of a solution containing both alcohol and ethylene glycol cannot be determined accurately by means of a hydrometer.

CLUTCH

Description. The clutch, which provides a means of disconnecting the engine from the transmission while shifting gears, is of the single plate dry disc type. The 235 cu. in. engine clutch consists of a pressure plate, cover, disc with facings, diaphragm type spring, throwout bearing, throwout fork and small correlated parts. The 8-cylinder engine clutch uses heat treated coil springs and release levers instead of the diaphragm type spring.

Care. The Chevrolet clutch requires very little care or attention; however, proper use of the clutch will contribute materially to the carefree service it will render.

Never drive with the foot resting on the clutch pedal as this causes constant wear on the clutch throwout bearing and may cause slight clutch slippage which will cause premature failure of the parts.

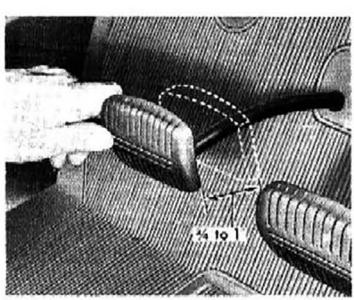


Fig. 45—Clutch Pedal Free Travel

The clutch pedal free travel should be checked at regular intervals by pushing the clutch pedal down with the fingers to determine the distance it moves before the throwout bearing engages the clutch diaphragm spring or release levers. This free travel should be ¾" to 1" (fig. 45). If adjustment is necessary, follow instructions below.

Maintenance

Clutch Pedal Adjustment. Push the clutch pedal down with the fingers and note the amount of pedal free travel. If this free travel is more than 1" or less than ¾" adjustment should be made.

Loosen the lock nut "A" (fig. 46) on clutch release rod and back off the adjusting nut "B" to increase the pedal free travel, or tighten the adjusting nut "B" to decrease the pedal free travel. When correct travel is obtained, tighten the lock nut "A" and recheck the pedal free travel.

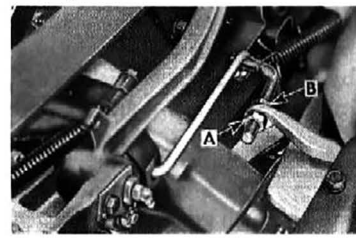


Fig. 46—Clutch Pedal Travel Adjustment

TRANSMISSION

3-Speed Transmission. The sturdy synchro-mesh transmission with steering column gear shift control used as standard equipment on the ½ and ¾ ton models provides three forward speeds and reverse. It is of helical gear type providing unusually quiet operation in all gears.

The gears are carburized and shot peened for additional strength and long life. The countergear is mounted on needle bearings. The clutch gear is supported by a heavy duty ball bearing at the front end of the transmission case. The front end of the mainshaft is supported by two sets of needle pilot bearings in the hollow end of the clutch gear and the rear end is carried by a ball bearing mounted in the rear of the transmission case.

Heavy-Duty 3-Speed Transmission. A heavy-duty 3-speed transmission, which incorporates greater gear reductions and more rugged construction than the standard 3-speed transmission, is available as optional equipment on ½ and ¾ ton truck models; also on 1 ton truck models where heavy duty applications do not require a 4-speed transmission. This transmission features wider gears with greater contact area, heavier mainshaft support bearings, larger double row roller countershaft bearings, and gear ratios better suited to heavier duty truck operation.

4-Speed Transmission. This sturdy synchro-mesh transmission has increased durability and has synchro-mesh action into second, third and fourth speeds using helical gears, affording quieter operation and longer life.

The gears are drop forged steel, heat treated for strength and long life. The clutch gear is supported in the case on a

ball bearing and the mainshaft is piloted at the front on roller bearings in the clutch gear and supported in the case at the rear by a large ball bearing. The countershaft is mounted at the front in a roller bearing and at the rear in a large ball bearing.

5-Speed Transmissions. Three manual shift, synchromesh, helical type 5-speed transmissions are available on Chevrolet trucks. Fifth gear is direct drive.

A New Process 5-speed transmission is standard on the 10,000 series school bus and optional on 5, 6, 7 and 8000 series vehicles.

A Spicer 5-speed transmission of heavier construction with greater torque capacity is standard on 9 and 10,000 series except the school bus. A close ratio Spicer 5-speed transmission is also available for these models.

A Clark 5-speed transmission with close ratio (see "Specifications" in Chapter IV) is used with the 2-barrel 348 cubic inch engine option on 7 and 8000 series trucks.

Care and Maintenance. Chevrolet 3, 4 and 5-speed transmissions require very little care or maintenance. The lubricant level should be checked at regular intervals and lubricant added as necessary. See instructions in the Lubrication Section for further information on the maintenance of your transmission.

Hydra-Matic Transmission. An automatic transmission is available as optional equipment on 3 and 4000 series trucks. This transmission provides greater operating convenience, particularly in continuous stop-and-go operation, and greater versatility for the vehicle in meeting all driving conditions by virtue of the range of gear ratios included.

Three separate options are available, one for 3100 and 3200 series, another for 3600, 3800 and 4000 series with 6 cylinder engine, and a third with heavier four pinion planet gear sets for V-8 engines. Each option has a set of ratios appropriate for the rated gross vehicle weight of the models in which it is used.

The transmission consists of a fluid coupling, which replaces the conventional clutch, combined with a hydraulically controlled automatic transmission having four-speeds forward and one reverse. Gear changing is accomplished automatically by the transmission in accordance with speed and load demands. See "Driving with Hydra-Matic," in Chapter I.

Care and Maintenance. To maintain efficient operation of the Hydra-Matic Transmission, the fluid level should be checked every 1,000 miles and the fluid changed every 25,000 miles.

NOTE: It is very important that an adjustment of the bands be performed at the first 1500 mile interval. Bands should be adjusted thereafter every 10,000 miles.

Powermatic Transmission. A 6-speed automatic transmission is available as optional equipment on 2 and 2½ ton trucks. This is a torque converter type, heavy-duty transmission with an integral, hydraulic retarder for retarding truck speed or for continuous downhill braking. Four planetary gear units provide four ranges (low, intermediate, high and reverse), and a splitter planetary gear system makes two gear ratios available in each range.

Selection of the optimum ratio in each range for the vehicle speed and load demand is automatic. See "Driving with Powermatic," in Chapter I.

Care and Maintenance. To maintain efficient operation of the Powermatic Transmission, the fluid level should be checked every 1000 miles, the fluid and the full-flow oil filter cartridge should be replaced at regular intervals as recommended in Chapter III.

PROPELLER SHAFT AND UNIVERSAL JOINTS

The ½ ton and the 104" wheelbase Forward Control models use a tubular propeller shaft in a Hotchkiss drive system. The universal joints are needle bearing type with a single lubrication fitting to provide lubrication to all trunnion bearings through the drilled trunnion.

The ¾ ton models use a single propeller shaft Hotchkiss type drive system similar to ½ ton models when equipped with standard 3-speed or Hydra-Matic transmission and two propeller shafts and three universal joints when equipped with other transmissions.

The 125" and 137" wheelbase Forward Control models use two propeller shafts and three universal joints both as standard equipment and in combination with transmission options.

The 160⅝" wheelbase L.C.F. and the 2 ton 174½", 196½" and 222½" wheelbase models use three propeller shafts and four universal joints.

The 240" wheelbase 2½ ton models use four propeller shafts and five universal joints.

All models with two or more propeller shafts (except tandem axle models) have a bearing support located near the rear ends of the front propeller shaft and each intermediate shaft. The 174" wheelbase tandem axle model has a bearing support at the front end of the intermediate shaft. The 192" tandem axle model has a bearing support at the rear of the front propeller shaft.

All bearing supports are permanently lubricated at assembly and require no further lubrication.

Care. When the universal joints are lubricated regularly as instructed in this manual, they will require very little other care or maintenance. The universal joint "U" bolt nuts should be checked occasionally to make sure they are tight. Do not overtighten as bearing cups will be distorted.

REAR AXLE

½-Ton – The ½ ton rear axle is of the semi-floating hypoid gear Hotchkiss drive type. The rear universal joint rear yoke is splined and locked to the pinion shaft. The hypoid drive pinion is mounted on pre-loaded taper roller bearings. The hypoid design ring gear is bolted to the differential case which is mounted on pre-loaded roller bearings. These units together with the two differential side and pinion gears are mounted in a differential carrier containing lubrication channels for the pinion bearings. The axle shafts are splined to the differential side gears. The outer ends of the axle shafts support the weight of the vehicle on roller bearings.

¾, 1, 1½, 2 and 2½ Ton—The standard axle on these models is a full floating rear axle having straddle mounted pinion, a four pinion differential and a hypoid ring gear and pinion. The differential is mounted in roller bearings.

Heavy-Duty Single Speed Rear Axle—A larger rear axle which has spiral bevel gears is available as an option on 9-10000 models. The differential case is mounted in the carrier on taper roller bearings. The drive pinion is straddle mounted between straight roller bearings at inner end and two opposed-taper roller bearings at outer end. Drive to rear wheels is through studs and tapered dowel rings.

2-Speed Axle—A planetary-reduction type 2-speed axle (fig. 47) is optional on 1½ and 2 ton trucks. Torque is transmitted to the differential case through eight teeth on four planetary pinions to guarantee long life in severe service. The primary gears are of hypoid type with large tooth contact areas and great torque capacity. The drive pinion is straddle mounted. Axle shafts are equal in length for maximum durability. A distinctive feature is that only the drive pinion and ring gears operate to produce the high range reduction, the planet and sun gears being locked to revolve with the ring gear.

In low-range operation the primary (hypoid) reduction is multiplied by a planetary system reduction ratio of approximately 1.36:1 for the final drive.

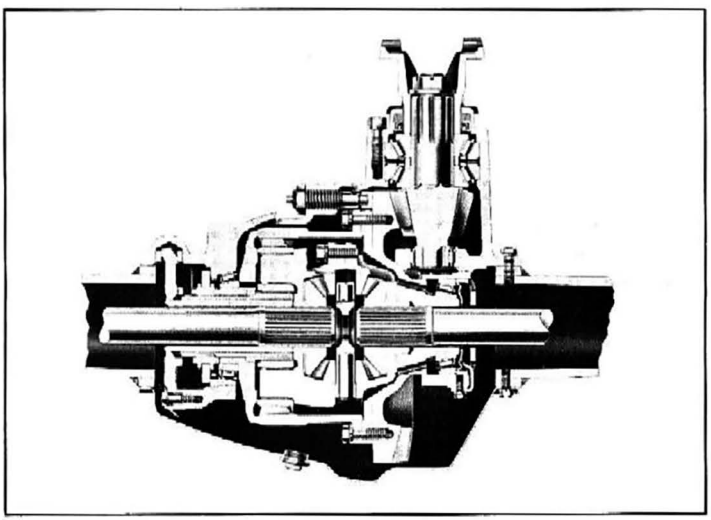


Fig. 47—Two-Speed Axle

The secondary reduction occurs only when the sun gear is held stationary, the four planets then being driven in an orbit around the sun gear by internal teeth in the large case or "pot" which is bolted to the ring gear.

Planet journals are integral with the planet support and differential case. The orbit speed of the planets is conveyed to the rear wheels through the differential case, differential pinions, differential side gears and axle shafts.

Control of the sleeved sun gear is accomplished through lateral movement of a coaxial "shifter sleeve" splined over the sun sleeve. Left hand movement of the shifter collar and sleeve produces sun gear stoppage when dove tail teeth in an anchor ring attached to the housing engage similar teeth on the approaching face of the shifter sleeve.

Right hand movement of the shifter collar and sleeve by the vacuum control mechanism results in release from the anchor ring. Clutching teeth on the opposite face of the shifter sleeve then mesh with dove tail teeth projecting from the planet case and ring gear assembly. Thus engaged, the sun gear must turn at the speed of the ring gear, the planets are locked in place, and only the reduction afforded by the primary drive gears determines mean rear wheel speed.

A two way vacuum system actuates the shift collar and sleeve. The hand control is located on the gear shift lever permitting simultaneous transmission and axle shifts so that full advantage may be taken of all forward ratios.

Heavy-Duty 2-Speed Rear Axle – A heavy-duty planetary 2-speed axle with hypoid drive gear and pinion is available on 2½ ton models. A larger 2-speed axle with spiral bevel drive gear and straddle mounted pinion is also available on 9-10000 models.

A set of planetary gears and a sliding clutch gear, installed between drive gear and differential, permits ratio change from high to low or vice versa. Shift control is by electro-mechanical means through a switch button on the gearshift lever and a small reversible electric motor located on the differential carrier.

CAUTION: The 2-speed axles have no neutral position. Axle must always be operated in either high or low ratio. To attempt to coast with axle supposedly in neutral may result in serious damage to the unit.

Care. The rear axles used on Chevrolet trucks require very little care or attention. The lubricant level should be checked at each chassis lubrication and the differential carrier and inspection cover bolts should be kept tight.

The axle flange to hub bolts on 3600, 3800, and 9-10000

series truck axles should be kept properly tightened. If these bolts are found loose and grease has worked out between hub and axle flange, new shaft gaskets should be installed.

On 1½ and 2 ton and 7000-8000 series truck axles the axle shaft is spline attached to the wheel hub. External splines on the outer diameter of the shaft flange mesh with internal teeth in the hub. The shaft is retained in the hub by a hub cap. Should leakage occur simply remove hub cap, clean mating faces, install new gasket, replace hub cap and tighten hub cap retaining bolts securely.

REAR WHEELS AND BEARINGS

Demountable steel disc wheels are standard on 3, 4, 5 and 6000 series. They are held securely on the axle flange or hub flange with special bolts and nuts. Cast spoke wheels with demountable rims are standard on 7, 8, 9 and 10000 series. All models except the half ton have the wheel hub mounted on the outer end of axle housing with two large roller bearings. An adjusting nut which screws onto the end of axle housing provides a means of adjusting the bearings. The ½ ton semi-floating axle has the wheel bolted directly to the axle flange. The bearing is in the outer end of the axle housing and rides on a special race on the axle shaft just back of the axle flange.

Care. Keep the wheel to hub or axle flange and the rim to hub bolt nuts securely tightened (see "Specifications" in Chapter IV). In case the hub flange or wheel disc should become coated with oil or grease the wheel should be removed and all grease removed with cleaning solvent. Reinstall wheel and tighten bolts to specified torque.

CAUTION: When removing wheel rim, loosen all nuts approximately flush with end of stud, then tap clamp to loosen rim. Do not remove nuts until clamps are free or clamp may fly off stud. When installing rim tighten attaching nuts alternately and evenly to avoid excessive wheel run-out.

FRONT AXLE

Four wheel drive vehicles use a full floating banjo type front axle with constant velocity joints which permit the front wheels to be driven as well as turned.

All other Chevrolet trucks use what is known as a reverse

Elliott type "I" beam axle. The drop forged steel "I" beam has the spring seats forged integral with the "I" beam.

The 2½ ton models have roller type anti-friction bearings enclosed in a dust shield. All other models use two thrust washers separated by a third washer and enclosed by two telescoping dust shields.

Care. The front axle and its connections should be checked regularly for wear or looseness, especially for loose spring to axle "U" bolts, loose steering tie rod and drag link joints and for bent tie rod, drag link or steering arms.

Alignment. To provide easy steering, normal tire life and road stability and to prevent such troubles as shimmy, wander, tramp and tendency to lead to right or left, it is necessary to maintain correct front end alignment.

Since considerable expensive special equipment is required to properly check and adjust all the factors of front end alignment, it is advisable to take the truck to a Chevrolet dealer for this service when the front end alignment requires attention.

FRONT WHEELS AND BEARINGS

Demountable steel disc front wheels are standard on 3, 4, 5 and 6000 series. The wheels are attached to the hub with special bolts and nuts. Cast spoke wheels with demountable rims are standard on 7, 8, 9 and 10000 series. The hubs on the L.C.F., 2 and 2½ ton heavy duty models are mounted on the spindle with tapered roller bearings. The hubs on all other models are mounted on ball bearings.

Care. Keep the mounting bolt nuts tight and the wheel bearings properly adjusted as instructed below.

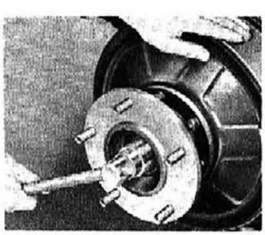


Fig 48—Adjusting Front Wheel Bearings

Wheel Bearing Adjustment. 1. Raise front of vehicle and remove wheel and tire assembly. Remove hub cap and dust cap or plate from hub. Remove cotter pin or, on double nut installations, remove outer nut, lock and lock ring from spindle.

2. Rotate hub and tighten adjusting nut to 33 ft. lbs. torque on all except 2½ ton models.

On 2½ ton models with single nut, tighten nut to 55 ft. lbs. torque. On 2½ ton models with double nut, tighten nut to 50 ft. lbs. torque.

3. On models with hubs mounted on ball bearings, back off adjusting nut until alignment with nearest hole in spindle is obtained, then install cotter pin.

On models with tapered roller bearings and single nut, back off nut ⅛ turn minimum and install cotter pin if aligned with hole in spindle. If alignment with hole in spindle is not obtained, back off nut slightly, until the nearest castellation in nut lines up with a hole in spindle.

On models with double nut, back off nut ¼ to ⅓ turn to align dowel pin in nut with hole in lock ring, then install nut lock and outer nut. Tighten outer nut to 250-300 ft. lbs. torque.

4. Spin the drum to make sure it rolls freely. Lock the cotter pin or bend tab of lock over flat on outer nut. Install hub plate or dust cap and hub cap. Install wheel and tire assembly and lower the vehicle to the floor.

STEERING GEAR

The modern, heavy-duty recirculating ball type steering gear used on Chevrolet trucks is designed for easy steering and road stability. The steering gear reduction is as follows:

2 Ton L.C.F. and Forward Control models	27.76 to 1
2½ Ton L.C.F.	28.14 to 1
1½, 2 and 2½ Ton models (except L.C.F.)	23.6 to 1
All other models	21.3 to 1

Care. Check the steering gear to frame bolts regularly to make sure they are tight. Keep the pitman arm to pitman shaft nut tight. Keep the housing side and end covers tight to prevent grease leak and steering looseness. Add lubricant when necessary.

Steering Gear Adjustment. Steering gear adjustment is a very important operation and requires the use of a special checking scale; therefore, it is suggested that this service be performed by a Chevrolet dealer.

BRAKE SYSTEM

The self-energizing type braking system used on all

Chevrolet trucks combines hydraulically operated service brakes with mechanically operated parking brakes.

The hydraulic service brakes provide brake action at all wheels, while the mechanical parking brakes operate on the rear wheels of ½ and ¾ ton truck models. The 1, 1½, 2 and 2½ ton models are equipped with a propeller shaft brake.

The service brake system consists of the brake pedal, main cylinder, brake lines to all wheels, wheel cylinders, shoes with linings and brake drums. The parking brake on ½ and ¾ ton models with standard transmission consists of the brake lever, pull rods, cables and the toggle at the wheels which actuates the brake shoes.

The parking brake on 1 ton models and others with 3-speed heavy duty, 4-speed, or automatic transmission consists of the brake lever, bell cranks, pull rod, brake drum attached to the transmission, and an external brake band.

Parking brake on 1½, 2 and 2½ ton models (except Forward Control) consists of the brake lever, bell cranks, pull rod, brake drum attached to the transmission drive flange and internal and external brake shoes. When equipped with optional transmission, these models have the external band type propeller shaft brake.

The 2 ton Forward Control chassis is equipped with a handbrake lever which has a toggle lock action and a cable connecting this lock lever to the transmission brake.

The hydraulic system must be kept full of fluid at all times in order to function properly. The main cylinder includes a reservoir for a reserve supply of fluid. This automatically keeps the system full of fluid as long as there is a reserve supply in the reservoir. Should the reservoir become empty or the hydraulic system be opened at any point, air will enter the system and affect the efficiency of the brakes. When this occurs the hydraulic system must be bled. See "Bleeding Hydraulic System."

Care. The Chevrolet braking system requires very little care; however, the system should be checked occasionally for indications of fluid leak. If leaks are found the necessary repairs should be made at once.

The main cylinder inspection plug in the left side of the floor board should be removed and the top of main cylinder

cleaned carefully. The filler cap should be removed and if the fluid is low in the reservoir, it should be filled to a point about ½" from the top of reservoir with G. M. Super 11 Hydraulic Brake fluid. Check the filler cap to see that the vent holes are open. Install filler cap and inspection plug.

BLEEDING HYDRAULIC SYSTEM

Only G. M. Hydraulic Brake Fluid Super 11 should be used when bleeding brakes.

Brake system should be bled in a definite sequence to obtain best results. Figure 49 illustrates various combinations of brake equipment used, with bleeder valves numbered in the sequence in which they should be bled.

Brakes on ½, ¾ and 1 ton models, when not equipped with Hydrovac, may be bled by two methods, pressure or manual. On all other vehicles brakes should be bled only by the pressure system.

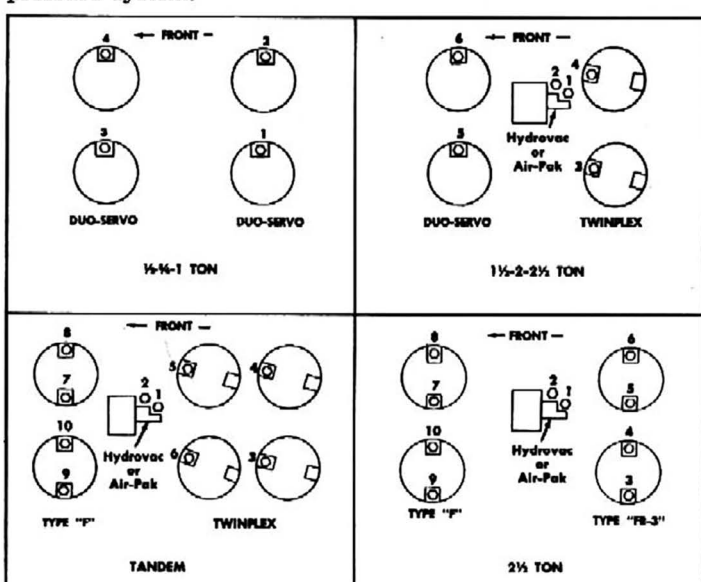


Fig. 49—Bleeding Sequence

Pressure Bleeding (All Models)

CAUTION: Stop engine and destroy vacuum in vehicle equipped with Hydrovac, or exhaust air pressure from vehicle equipped with Air-Pak, before opening any bleeder valve.

1. Make sure fluid level in pressure tank is up to petcock above outlet and that tank is charged with 25 to 30 psi air pressure. Tank pressure should not be allowed to fall below 20 psi at any time during bleeding operation.

2. Clean dirt from around main cylinder filler cap, then remove filler cap. Connect pressure tank hose to filler cap opening, then open valves at both ends of hose. Bleed air from hose before tightening connection at main cylinder.

3. First bleed Hydrovac or Air-Pak. Both units have two bleeder valves and must be bled in sequence shown in Figure 49. Slip end of bleeder hose over bleeder valve No. 1, on slave cylinder, and place other end in a glass jar containing enough hydraulic brake fluid to cover end of hose. Open bleeder valve with wrench, at least ½ turn, and observe flow of fluid from hose. Close valve as soon as bubbles stop and fluid flows in a solid stream. Repeat at bleeder valve No. 2.

4. On vehicles using Twinplex rear brakes, fully back off upper shoe adjustment at each wheel.

5. On all vehicles, bleed wheel cylinders at each wheel in sequence shown in Figure 49, in the following manner. Connect one end of bleeder tube to wheel cylinder and place other end in a glass jar. Open bleeder valve by turning valve counterclockwise approximately ¾ of a turn. Bleed until all bubbles disappear and fluid flows in a solid stream. Close bleeder valve.

NOTE: On all bleeder valves on Duo-Servo and Twinplex brakes, it is necessary to remove cap screw and lock washer from bleeder valve, then use bleeder hose with threaded fitting screwed into the bleeder valve. On Types "F" and "FR-3" brakes, plain end of bleeder hose slips over end of bleeder valve.

6. On vehicles with Twinplex rear brakes, adjust upper shoe on each rear wheel, with pressure tank connected. Push down hard on the brake pedal several times to centralize the shoes.

7. Disconnect pressure tank and readjust all brake shoes.

8. Apply approximately 75 pounds pressure on the brake

pedal and check the pedal clearance from the toe board to the forward edge of the pedal pad. This clearance should be a minimum of 5 inches with the floor mat removed. If reserve is less than 5 inches, rebleed the entire system in the sequence outlined above.

Manual Bleeding—½, ¾, 1 Ton (Not equipped with Hydrovac)

Manual bleeding is similar to pressure bleeding except that the brake fluid is forced through the lines by pumping the brake pedal instead of by air pressure.

1. Clean all dirt from top of main cylinder and remove filler cap.

2. Install adapter and automatic filler J-713 at main cylinder.

3. In sequence shown in Figure 49, bleed wheel cylinder in the following manner. Remove wheel cylinder bleeder valve screw and screw bleeder tube into bleeder valve. Place other end of tube in a container having sufficient fluid to cover end of tube.

4. Open bleeder valve approximately ¾ of a turn, depress the brake pedal a full stroke and allow it to return slowly, making sure the end of the bleeder tube is under the surface of the liquid in the container. Continue operating the pedal, refilling the jar at the main cylinder when necessary, until liquid containing no air bubbles emerges from the bleeder tube. Close bleeder valve as brake pedal is on down stroke.

5. Replace filler cap, then readjust all brake shoes.

6. Apply approximately 75 pounds pressure on the brake pedal and check the pedal clearance from the toe board to the forward edge of the pedal pad. This clearance should be a minimum of 5 inches with the floor mat removed. If reserve is less than 5 inches, re-bleed the entire system in the sequence outlined above.

BRAKE ADJUSTMENT—Front or Rear
3,000 Series—(Duo-Servo)

1. Raise vehicle and place on stand jacks with wheels clear of floor.

2. Disconnect rear axle parking brake cables from idler lever links.

3. Remove adjusting hole covers from flange plates on all four wheels.

4. Expand brake shoes by turning adjusting screw with suitable tool until a light drag is felt on the brake drum. Refer to Figure 50.

NOTE: Moving the handle end of tool toward center of wheel, expands shoes.

5. On ½ ton, turn the adjusting screw in opposite direction on all four wheels 7 notches to relieve brake drag. On all other models back off adjusting screw just enough to eliminate drum drag not to exceed 7 notches.

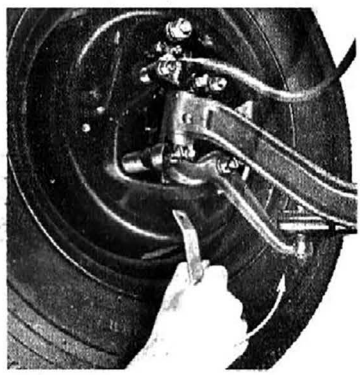


Fig. 50—Adjusting Duo-Servo Brakes

6. Replace adjusting hole covers.

7. On trucks where the rear wheel service brakes are utilized as parking brakes and an adjustable clevis is also used on brake pull rod, adjust clevis on rod to obtain a dimension of $1\frac{7}{16}$" from end of rod to center line of clevis hole.

NOTE: The above adjustment for pull rod is the same when vehicle is equipped with drum type propeller shaft brake.

Adjustment—Front—(Duo-Servo) 4-5-6,000 Series

1. Jack front wheels clear of floor.

2. Remove adjusting hole covers from front brake flange plates. Expand brake shoes by turning adjusting screw with suitable tool until a light drag is felt on the brake drum (fig. 50).

NOTE: Moving the outer end of tool toward center of wheel, expands shoes.

3. Turn the adjusting screw in opposite direction on both front wheels just enough to eliminate drum drag but not more than 7 notches. If more than 7 notches are necessary to eliminate drum drag, brakes will require a major brake adjustment.

4. Replace adjusting hole covers.

5. Lower front of truck to floor.

Adjustment—Front (Wagner Type "F")
7-8-9-10,000 Series

1. Jack up axle. Place wrench on one adjusting cam stud to adjust one shoe (fig. 51). Rotate wrench in direction of forward wheel rotation to decrease lining to drum clearance. Reduce clearance until brake drag is felt as wheel is turned in forward direction by hand.

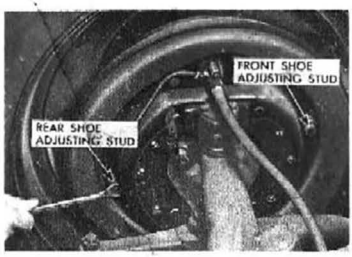


Fig. 51—Adjusting Type "F" Brakes

2. Move wrench slightly in opposite direction until brake drag is relieved, then move wrench an additional 7 to 10 degrees to provide running clearance. (7 to 10 degrees is equal to 1 to 1½ inches of travel at end of an 8-inch wrench).

3. Place wrench on opposite adjusting cam stud and adjust shoe by repeating steps 1 and 2.

Adjustment—Rear—(Twinplex)
4-5-6-7-8,000 Series & Tandem

1. Jack rear wheels clear of floor and remove adjusting hole covers from flange plates.

2. Using a suitable tool (fig. 52), turn rear adjusting screw until a light dragging contact is felt on the brake drum and then back off 3 notches. Turn front adjusting screw until a light dragging contact is felt on the brake drum and back off 3 notches. Install adjusting hole covers.

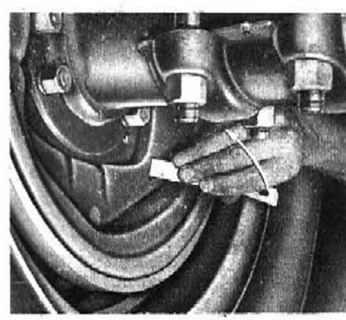


Fig. 52—Adjusting "Twinplex" Brakes

3. Repeat above operation on the other rear wheel.

NOTE: Moving the outer end of the adjusting tool toward the center of the wheel expands the shoes.

4. Lower rear of truck to floor.

Adjustment—Rear—(Wagner Type "FR-3")
7-8-9-10,000 (except Tandem)

1. Jack up wheels until clear of floor. Remove adjusting hole covers from backing plate.

Fig. 53—Adjusting Type "FR-3" Brakes

2. At one adjusting slot, insert screwdriver through slot and engage adjusting wheel (fig. 53). Move screwdriver handle toward axle to rotate adjusting wheel and decrease lining clearance until lining drags on drum.

3. Relieve drag by rotating adjusting wheel in opposite direction. Back off adjustment as follows: For worn lining—3 notches (clicks). For new lining—5 notches (clicks).

4. At other adjusting slot, repeat steps 2 and 3 to adjust other shoe.

5. Install adjusting hole covers in backing plate.

Parking Brake Adjustment (Rear Wheel Type). The parking brake adjustment should be checked after each service brake adjustment.

1. Set parking brake lever in fully released position and check clearance between rear of idler lever and end of slot in guide. If necessary, tighten nuts on forward cable at idler lever to obtain approximately ¼" clearance.

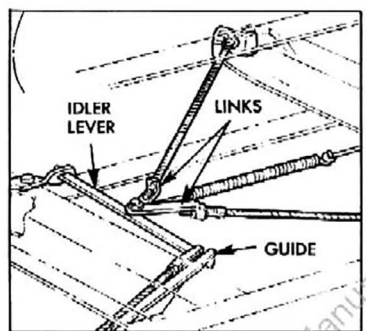


Fig. 54—Parking Brake Adjustment—½ and ¾ Ton

2. Pull hand brake lever back four notches from full released position. Loosen cable nuts at rear of idler lever links and pull cables out of conduits by hand as far as possible. Tighten nuts at front of links, then tighten rear nuts.

3. Pull back hand lever until a heavy drag is felt at one wheel. Check other wheel for drag and if any difference is

noted, loosen the tight wheel until equal drag is obtained.

4. Pull back hand lever a total of nine notches. Brakes should lock so neither wheel can be turned by hand. If more than nine notches are required to lock brakes, check service brake adjustment.

Parking Brake Adjustment (Band Type)

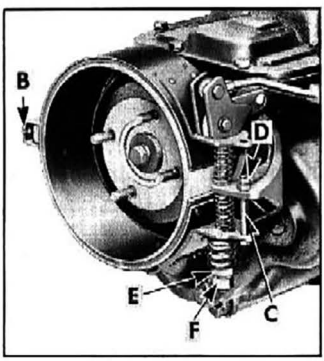


Fig. 55—Propeller Shaft Brake—(Band Type)

1. Set hand brake lever in fully released position and, if necessary, adjust pull rod so lower edge of both cams are flat against the band end. Turn up anchor screw "B" (fig. 55) until there is .010"-.015" clearance between lining and drum.

2. Draw up adjusting bolt "C" until there is .020" clearance between drum and lower end of band. Tighten lock nut "D."

3. Turn up adjusting nut "E" until there is .020" clearance between drum and upper end of band. Tighten lock nut "F."

Parking Brake Adjustment (Shoe Type)

1. Set hand brake lever in the fully released position.

2. Loosen lock nut "D" and draw up adjusting bolt "A" (fig. 56) to secure clearance between outer shoe facing and brake drum of .010"-.015" measured at a point directly above bolt "A." Then hold bolt and tighten lock nut securely.

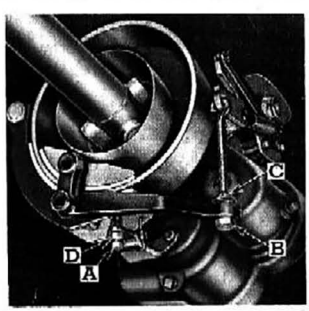


Fig. 56—Propeller Shaft Brake—(Shoe Type)

3. Loosen lock nut "C" and draw up nut "B" to secure .010"-.015" clearance between inner shoe facing and brake drum. Then hold nut "B" and tighten lock nut "C" securely.

4. Recheck both facing-to-drum clearances.

Brake Pedal Clearance. Loosen nut on eccentric adjusting bolt

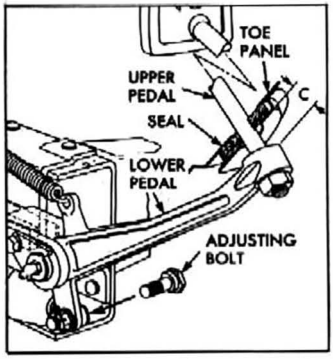


Fig. 57—Brake Pedal Clearance Adjustment

fig. 57) and rotate bolt in direction required to obtain correct clearance "C" between upper corner of lower pedal and seal. Tighten nut and recheck clearance.

Clearance "C" should be 1¾" on L.C.F. models and 1 1/16" on other models except Forward Control.

HYDROVAC

The Hydrovac is standard equipment on the 2 and 2½ ton models and is available as optional equipment on all models.

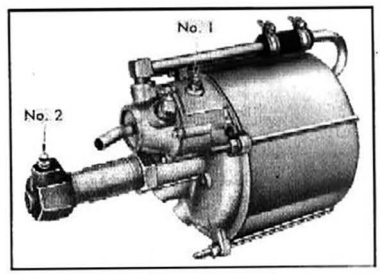


Fig. 58—Hydrovac

The Hydrovac (fig. 58) consists of three operating units built into one assembly; namely, the control valve assembly, the vacuum power cylinder and the brake hydraulic cylinder.

With this system the engine vacuum is used to greatly increase the hydraulic pressure to the brake wheel cylinders. This provides unusual braking efficiency with comparatively light pedal pressure.

Care. Lubricate the vacuum cylinder according to instructions in the Lubrication Section.

The vacuum connections between the engine and the hydrovac should be checked for damage and the connections tightened occasionally. The Hydrovac air cleaner should be removed, disassembled and cleaned at least twice a year. If the truck is operating under dusty conditions, the air cleaner should be cleaned more frequently.

AIR-OVER HYDRAULIC AND FULL-AIR BRAKES

An air-over hydraulic (Air Pak) system is optional on all 2 and 2½ ton trucks and a full-air system is optional on series 7, 8, 9 and 10,000 except school bus. These systems use compressed air maintained by an engine mounted and driven two-

cylinder compressor. A single air storage tank supplies air to the air-over hydraulic brake unit, and two air storage tanks are used in the full-air system.

Care. Lubricate the air cylinder and the air compressor idler pulley bearing according to instructions in the Lubrication section. The compressor is engine lubricated and requires no special maintenance. All line connections should be checked for leaks and tightened if required.

SPRINGS AND SHACKLES

Front Springs and Shackles. All Chevrolet trucks use leaf type front springs which are shackled at the rear on L.C.F. and Forward Control models and at the front on all other models. Plate type shackles with threaded bushings and bolts are used on all except 2½ ton L.C.F. models, which use clevis type shackles with plain bushings and pins with lock bolts. Springs are attached to hangers with bolts on all except 2½ ton models which use a pin with lock bolt.

Rear Springs and Shackles. All models (except tandem axle models) have leaf type rear springs with the shackle at the rear end of the spring. The ½ and ¾ ton use a plate type shackle with threaded bushings while all other models use a clevis type shackle and heavy shackle pins with lock bolts.

Some models use a two-stage type rear spring to provide better riding qualities when lightly loaded and proper support for heavy loads. Some models that are to be subjected to heavy loads are equipped with auxiliary springs which mount above the regular springs and contact brackets on the frame member when handling heavy loads.

Tandem axle models use a walking beam type suspension system with 2-stage spring piles.

Care. Keep the spring to axle "U" bolts and the shackle bolts properly tightened (see "Specifications" in Chapter IV).

Lubricate the shackles and hangers according to instructions in Chapter III "Lubrication."

ELECTRICAL SYSTEM

The electrical system consists of the following units—generator, combined voltage and current regulator, starting motor, storage battery, distributor, ignition lock, ignition coil, ammeter, gasoline gauge, horn, lamps, switches, wiring and miscellaneous parts

The ignition switch, coil, distributor and other miscellaneous parts making up the "Ignition System" were previously covered.

BATTERY. A 12-volt storage battery is located under the hood on the forward side of the dash panel. The batteries used in Forward Control models are 11 plate 72 ampere hour capacity, all other models except school buses use a 9 plate 53 ampere hour capacity battery. School buses use an 11 plate 70 ampere hour capacity battery. The 70 and 72 ampere hour batteries cannot be interchanged due to tray differences.

Care—Liquid level in the battery should be checked at least every 2,000 miles or once every two weeks. If the liquid level is found to be low, water should be added to each cell until the liquid level rises to the bottom of the vent well. **Do not overfill!** Distilled water, or water passed through a "demineralizer" should be used for this purpose in order to eliminate the possibility of harmful impurities being added to the electrolyte. **Do not add any substance to the electrolyte except water.**

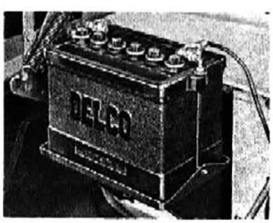


Fig. 59—Battery Mounting

CAUTION: Never allow an electric spark or flame near the battery, particularly the vent caps. Before working around the battery, ground the vehicle to reduce possibility of static spark. Batteries give off highly combustible hydrogen gas when charging and for some time after. Also, avoid getting battery acid on clothing or other fabrics. When performing any operation on electrical system or engine, disconnect ground cable from battery negative post.

In freezing weather the vehicle must be driven after adding water to properly mix it with the electrolyte and prevent freezing. It is also important to keep the battery in a fully charged condition in cold weather as a discharged batterey will freeze at a little below the freezing point of water (32 degrees F.).

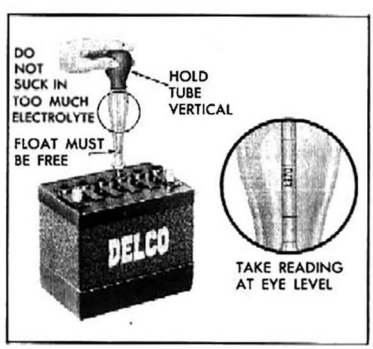


Fig. 60—Testing Battery with Hydrometer

The state of charge in the

battery should be checked regularly. Your Chevrolet dealer will gladly perform this service; however, if it is inconvenient to take the truck to the dealer the state of charge in the battery can be checked by using a battery hydrometer as shown in Figure 60. The hydrometer reading of a fully charged battery will be from 1.260 to 1.280 at 80° F.

BATTERY TERMINALS. The battery cable terminals must be kept clean and tight. Loose or corroded terminals cause hard starting and discharged batteries. When corrosion appears on the terminals they should be cleaned in a solution of baking soda and water or ammonia and water. After cleaning, the top of the battery should be flushed off with clear water. To reduce the tendency of the terminals to corrode, coat them with petrolatum. Saturate terminal washer with engine oil every 1000 miles.

STARTER. The starting motor on all six-cylinder models has a manual shift drive mechanism. Eight cylinder model starting motors are operated by a solenoid.

Care. Keep the terminal nut tight on the starting switch. Check the switch mounting screws, solenoid mounting and starting motor bolts periodically to make sure they remain tight.

GENERATING SYSTEM. The generating system consists of the generator, voltage and current regulator, ammeter and necessary wiring.

The ammeter indicates whether current is being supplied to or removed from the battery.

The generator used on all Chevrolet trucks has sufficient capacity to supply all regularly used accessories and keep the battery fully charged providing the system is in good condition.

The generator output is controlled by the combined current and voltage regulator and circuit breaker. The circuit breaker points close when the generator voltage is higher than the battery voltage so that current can flow to the battery, and open when the generator voltage is lower than the battery voltage to prevent the battery from discharging through the generator.

The current regulator protects the generator by preventing

the generator output from exceeding 28 to 32 amperes.

The voltage regulator protects the battery and electrical system by preventing the generator voltage from exceeding safe voltages.

Care. The connections in the entire generating circuit must be kept tight and free from corrosion or anything that will cause high resistance in the circuit. The generator should be lubricated according to instructions in the Lubrication Section.

Maintenance. The maintenance services on the generating system, especially the voltage and current regulator, require the use of special equipment not generally available to the vehicle owner.

> **NOTE: Never tamper with the voltage and current regulator unless you have special testing equipment and are trained to do this kind of work.**

At periodic intervals of approximately 5000 miles, the terminals, external connections and wiring, mounting, belt and pulley should be checked. The commutator and brush inspection can be made through the openings in the commutator end frame. If the commutator is dirty or if the brushes are badly worn, it is best to have your Chevrolet dealer make the necessary test and repairs.

LAMPS. All Chevrolet trucks are equipped with dual "Sealed Beam" headlight units in which the light source, the reflector and lens are all assembled in a hermetically sealed unit. Figure 61 shows the component parts of the light. With this sealed unit dirt or moisture cannot enter the assembly; therefore, it retains its light reflecting ability indefinitely.

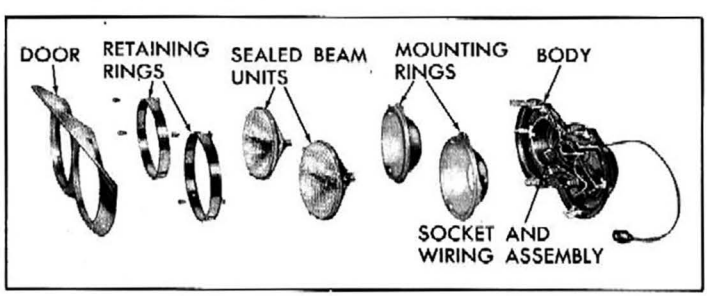


Fig. 61—Headlamp Parts

Sealed Beam Unit Replacement

Fig. 62—Unhooking Retaining Ring Spring

1. Remove four headlamp door retaining screws and remove door.

2. With long nose pliers remove the retaining spring from the retaining ring, then remove the retaining ring attaching screws (fig. 63). DO NOT disturb the adjusting screws.

3. The retaining ring may now be removed and the sealed beam unit pulled forward out of the mounting ring. As shown in Figure 64 the mounting ring may be removed at the same time if desired.

Fig. 63—Removing Retaining Ring Screws

4. Disconnect connector plug (fig. 65) from the sealed beam unit and remove the unit.

NOTE: The sealed beam units and connectors are indexed to assure ease of identification for installation. The inboard units are designated Type 1 (to indicate 1 filament in the unit) and have the numeral "1" molded in the top of the lens. The outboard units are designated Type 2 (to indicate 2 filament in the unit) and have the numeral "2" molded in the top of the lens. Type 1 unit takes a double connector plug and Type 2 unit takes a triple connector plug.

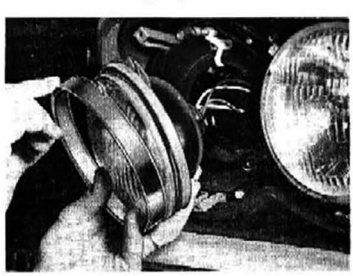


Fig. 64—Removing Sealed Beam Unit

5. Replace mounting ring if it has been removed in Step 3. Attach connector to a new sealed beam unit of correct type (see note) and place unit in position in the mounting ring being sure that the number molded into the lens face is at the top.

Fig. 65—Disconnecting Plug

6. Set the retaining ring into place and replace the retaining ring attaching screws, then use long nosed pliers to engage retaining spring of the lamp body in spring hole in retaining ring.

7. Replace the headlamp door and four attaching screws.

Proper aiming of these powerful lights is most important to assure sufficient illumination of the highway without blinding other motorists. When light aiming is necessary it is advisable to contact a Chevrolet dealer who has special equipment for this purpose.

The parking, stop and tail lamp bulbs may be reached by removing the rim clamp screws, rim and lens. Push the bulb in slightly and turn it counterclockwise as far as possible and pull it out of socket. Push new bulb into place and turn it clockwise to lock it. Install rim and lens.

THERMAL CIRCUIT BREAKERS AND FUSE. One circuit breaker in the lighting circuit for the headlamps and parking lamps eliminates a fuse in the circuit. When current load is too heavy, the circuit breaker opens and closes rapidly, reducing current sufficiently to protect wiring until the cause is eliminated. A second circuit breaker in the circuit for other lamps prevents short circuit or overload in that circuit from disabling the headlamp circuit. Both circuit breakers are incorporated in the light switch. A fuse in the light switch protects the instrument panel light circuit.

TUBELESS TIRES

Tubeless tires mounted on one piece full drop center rims are used on all 1958 Chevrolet trucks. These tires have a safety inner liner which, if punctured, tends to cling to the penetrating object forming a partial seal until the object is removed from the tire. It is therefore now even more essential to conduct a periodic pressure check plus a visual tire inspection to detect imbedded objects which might otherwise go unnoticed and cause serious casing damage.

Inspection for Leaks

1. With wheel assembly removed from vehicle, inflate the tire to recommended operating pressure.

2. Lower assembly into water tank or run water over tire to locate leak. Mark location of leak with crayon.

DEMOUNTING AND MOUNTING

All tubeless tires used on Chevrolet trucks with the exception of the 6.50-16 and 6.70-15 sizes (used on ½ ton models) should be demounted and mounted as described in this section. The 6.50-16 and 6.70-15 tires may be demounted using present tire machines or standard tire irons following the same procedure employed in servicing tube type tires.

CAUTION: A hammer or tools with sharp edges should never be used to demount or mount tubeless tires as damage to rim flange or tire sealing bead may result.

Fig. 66

Demounting (all except 6.50-16 and 6.70-15 tires)

1. Remove valve core to completely deflate tire. With tire lying flat on floor, loosen beads from rim seats by walking around on tire with heels at points close to rim. With wide side of rim down, apply tire lubricating soap to top bead. With stops toward rim, insert spoon ends of two tire irons about 10″ apart. While standing on tire to hold bead in gutter, pull one tool toward center of rim (fig. 66).

Fig. 67

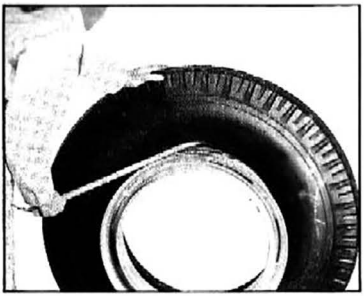


Fig. 68

Fig. 69

Fig. 70

2. Hold one iron in position with foot and pull second iron toward center of rim. Progressively work bead off rim, taking additional bites if necessary (fig. 67).

3. Stand assembly in vertical position. Lubricate second bead. At top of assembly insert straight end of tire iron between bead and back flange of rim at about a 45 degree angle (fig. 68).

4. Turn iron so that it is perpendicular to rim. Pry second bead off (fig. 69).

Mounting (all except 6.50-16 and 6.70-15 tires)

1. Inspect rim to insure bead seats are clean and smooth. Then place rim on floor with wide side down and lubricate first bead of tire and upper bead seat of rim (fig. 70).

2. Push first bead into well of rim and onto rim as far as possible. Using straight end of tire iron and with stop resting on rim flange, work remaining section of first bead over rim (fig. 71).

3. Hold second bead in well by standing on tire. When necessary, push section of bead into rim well and anchor with vise-grip pliers by pinching pliers on rim flange. Using spoon end of tire iron with stop toward rim, work progressively around bead

Fig. 71

using small bites until bead slips over flange onto rim base. If necessary, insert second tire iron and lubricate last 6" of bead before completing mounting (fig. 72).

4. Check valve to be certain that hex nut at the valve base is tight. Inflate tire to recommended operating pressure. Check assembly for air leaks.

Mounting (6.50-16 and 6.70-15 tires)

Fig. 72

1. Use present tire machines or standard tire irons following the same procedure used in mounting tube type tires, however, extreme care must be exercised to prevent injury to the sealing bead when forcing tire over the rim. A light application of rubber lubricating soap on the last ⅓ of each bead circle to be mounted will ease mounting.

2. With tire beads still unseated, rotate tire on wheel so that balance mark on tire lines up with the valve stem.

3. Start tire beads into the rim bead seats as follows:

If a tire mounting machine is being used, lift the tire high in the rim forcing the top tire bead against the top rim flange seating the top bead. The lower bead will be seated by the tire weight.

When a tire mounting machine is not being used beads may be seated by holding the tire and wheel assembly in a vertical position and bouncing on the floor at various points about the tire circumference.

4. Install valve core and inflate tire with quick "shots" of air to firmly seat the sealing beads.

5. Check assembly for air leaks, then reduce tire pressure to that recommended for vehicle operation.

NOTE: If a seal cannot be effected in the foregoing manner with the rush of air, it can be accomplished by applying a mounting band or heavy sash cord to the circumference of the tire and then tightening with a tire iron.

REPAIRING TUBELESS TIRES

There are several methods of repairing tubeless tires advocated by the tire manufacturers, all of which are based on their combined experience. Methods which have proven very satisfactory for repair of punctures not exceeding 3/16" diameter are outlined in this section, while repair procedure for punctures in excess of 3/16" are not herein covered due to the wide variance in the type of repair required for injuries of this magnitude.

Chevrolet recommends the use of either of two types of patches for repair of tubeless tires. Both types are currently available from the tire manufacturers and are merchandised in kits which also contain the necessary hand tools and other material for a complete tire repair job.

The recommended patch types are:

1. The Self-Vulcanizing Cold Patch.

No heat is required in the use of this patch as vulcanization is chemically performed upon application of the patch. This type of patch has been found to give excellent results on all standard production type tubeless tires, but should under no circumstance be used on puncture sealing tires incorporating a soft sealant material in the inner liner.

2. The Hot Patch.

This patch contains its own fuel and vulcanization takes place when this fuel is ignited. Previous experience has shown this type patch to be very satisfactory for repair of all types of tubeless tires.

Prior to the application of either of the above mentioned patches the tire injury must first be cleaned and filled as described in the following paragraphs:

Fig. 73

Cleaning Injured Area

1. Probe the injury with an awl or hand rasp to remove puncturing object and other foreign material (fig. 73).

2. Thoroughly clean inside of tire around injury with carbon tetrachloride or a commercial rubber solvent. Allow the cleaned area to dry.

CAUTION: If rubber solvent is used, flammable vapors should afterward be blown from the tire with compressed air.

Filling the Injury

Either of the following methods may be used to fill the injury:

1. With a tire sealing gun, fill injury with liquid rubber by holding gun tip firmly against puncture and forcing sealant through to opposite side of tire (fig. 74).

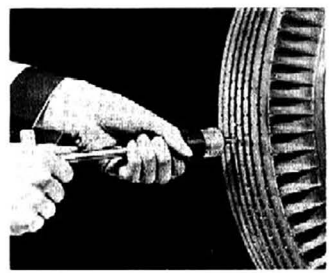


Fig. 74

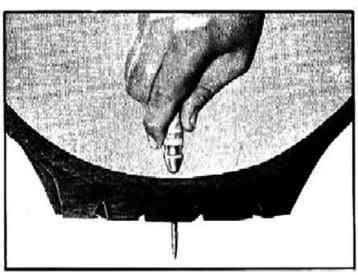


Fig. 75

2. Using a tubeless tire awl, fill injury with rubber strip as follows:

(a) Clean awl needle and dip in self-vulcanizing fluid and from inside of tire, force needle through puncture until point extends beyond tread (fig. 75).

(b) Remove detachable handle from needle. Cut ⅛" strip of filler rubber and place in awl needle hole with end of rubber strip extending beyond needle. Pull needle through tire with pliers (fig. 76).

NOTE: Filler rubber will now be secure in puncture.

(c) Using the awl, pack into the tire as much as possible of the

protruding portion of the rubber strip. Cut off excess length flush with tire surface.

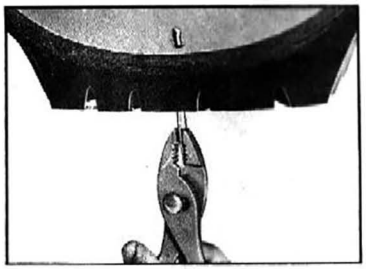


Fig. 76

Applying the Patch

With the application of either of the preferred type patches described below, it is necessary to first use a fine wire brush to thoroughly roughen an area about the injury slightly larger than the patch to be applied.

Fig. 77

CAUTION: If wire brush is mounted in power tool, care must be exercised not to cut through inner liner.

1. The Self Vulcanizing Cold Patch.

(a) Apply self-vulcanizing cement over buffed area and allow to dry for a minimum of five minutes.

NOTE: This time factor is important.

(b) Remove foil backing from patch base and place patch over injury. Stitch down firmly, especially at edges, to permit good adhesion and easy removal of paper cover from patch (fig. 77).

NOTE: The tire may be put into service immediately.

2. The Hot Patch.

(a) Remove backing from patch and carefully center patch over injury. Place clamp over patch and tighten only finger tight (fig. 78).

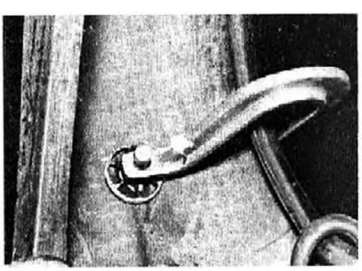


Fig. 78

(b) Ignite patch and allow to cool for at least 15 minutes or until cool to touch. Carefully remove metal pan and ashes remaining in tire.

NOTE: The tire may be put into service immediately.

Replacing Valves

The "snap-in" type rubber valve as used with the 6.50-16 and 6.70-15 tires should always be replaced by a new valve once it is removed from a rim.

To remove a "snap-in" valve from rim, force a small screwdriver blade between valve and edge of hole. Then, while prying on valve to start groove out of hole, push the valve back through the rim.

The one piece "snap-in" valve is installed as follows:

1. Clean all foreign material from area around valve hole in rim with steel wool.
2. Use water or a very light film of tire mounting soap to lubricate outside of valve.

CAUTION: Do not use oil, grease or hand soap.

3. Insert valve from inside rim and work into snapped in position using either a valve installer tool or a pair of slip-joint pliers with one jaw placed on the rim and the other jaw on base of the valve assembly.

CAUTION: Do not attempt to hammer the valve into rim.

TIRE ROTATION. The rotation of truck tires will minimize tire trouble and produce longer tire life. Without rotation, accelerated and irregular tire wear on any particular tire will not be spread out over the entire set, and replacement frequency is boosted. Tire wear will also contribute to such trouble as poor handling and shimmy.

No definite tire rotation formula is applicable to all trucks because of the wide range of usage. However, certain fundamentals, mixed with experience and observation, will assist the trucker in reducing tire costs.

A rotation sequence that moves the front tires to the rear is a general recommendation. Due to different loading conditions on the wheels, new tires which are broken in on the front wheels usually produce the greatest overall tire life.

Six wheel trucks with unmatched tires may be rotated by crossing front tires and by exchanging inner and outer tire positions on the dual wheels.

The outer tire on a dual wheel will skid or drag on a turn because of the difference in the turning radii of the inner and outer tires. This results in faster wear of the outer tire. In general, the tire with the largest diameter or least wear should be at the outside of each dual wheel. In addition, certain truckers

have found when trucks are operated continuously on high crown roads an increase in air pressure of from 5 to 10 pounds in the outside tire of each dual produces maximum tire life.

TIRE INFLATION

Tire pressures should be checked at least once a week and inflated according to the following table. If payload distribution or special equipment is such as to impose heavy loads on the front axle, inflation of front tires should be increased accordingly but should not exceed pressure shown for rear tires.

Avoid underinflation to prevent rim bruises, excessive heat, and irregular or rapid wear.

Avoid overinflation to prevent tire ruptures, hard riding, irregular or rapid wear and reduction of skid resistance.

Valve Caps should always be installed and tightened firmly to prevent dust and water entering and damaging valve seats. The caps also act as an air seal.

Inflation Table

Tire Size and Ply Rating		Inflation Pressure Pounds Per Square Inch	
Tubeless	Tube Type	Front	Rear
6.50-16-6	6.50-16-6	30[1]	36
6.70-15-4	6.70-15-4	30	30
6.70-15-6	6.70-15-6	30	36
7-17.5-6	7.00-15-6	25[2]	45
7-22.5-6	6.50-20-6	40	50
7-22.5-8	6.50-20-8	40	65
8.17.5-6	7.50-16-6	30[2]	45
8.17.5-8	7.50-16-8	30[2]	60
8-19.5-6	7.00-20-8	25[3]	50
8-19.5-8	7.50-17-8	25[3]	65
8-19.5-10	7.50-17-10	40	75
8-22.5-8	7.50-20-8	40[4]	65
8-22.5-10	7.50-20-10	40[4]	75
9-22.5-10	8.25-20-10	40[5]	70
9-22.5-12	8.25-20-12	40[5]	80
10-22.5-10	9.00-20-10	45[5, 6]	70
10-22.5-12	9.00-20-12	45[6]	80
11-22.5-12	10.00-20-12	50	75

[1] 36 psi on Four Wheel Drive Models
[2] 35 psi on Four Wheel Drive and 40 psi on Forward Control Models
[3] 40 psi on 4000 and 35 psi on Four Wheel Drive, 3800 and Forward Control Models
[4] 65 psi on Tandem and 45 psi on School Bus Models
[5] 70 psi on Tandem and 45 psi on School Bus Models
[6] 45 psi on 7, 8, 9 and 10,000 Models

CHAPTER III

LUBRICATION

In your selection of the proper brand of oil, it is desirable to consider the reputation of the refiner or marketer. He is responsible for the quality of his product and his reputation is the truck owner's best indication of quality.

ENGINE

Your use of the proper engine oil is one of great importance in obtaining maximum performance and satisfaction from your truck.

The engine crankcase as delivered to you is filled with a high grade oil of the type designated "Service MS" (see "Types of Oil" below). It also contains a special "Anti-Wear" additive to assist in better "mating" of the moving parts. This oil should be drained after 1000 miles driving. During the first 1000 miles, check the oil level frequently and if it is necssary to add oil, use one of the "light body" oils described under "Oil Viscosity Numbers" in this Chapter. At the end of the 1000 mile period, drain crankcase when hot and refill with an oil of the viscosity number and type recommended.

Types of Oil—In service, crankcase oils may form sludge and varnish and under some conditions corrosive acids unless protected against oxidation. To minimize the formation of these harmful products and to supply the type of oil best suited for various operating conditions, the oil industry markets several types of crankcase oils. These types have been defined by the American Petroleum Institute as follows:

"Service ML" (Comparable to former Regular Type)—Generally suitable for use in internal combustion engines operating under light and favorable service conditions.

"Service MM" (Comparable to former Premium Type)—Oil having the characteristics necessary to make it generally suitable for use in internal combustion engines operating under moderate to severe service conditions which present problems of sludge, varnish or bearing corrosion control when crankcase oil temperatures are high.

"Service MS" and "Service DG" (Comparable to former Heavy-Duty Types)—Oils having the characteristics to make them generally suitable for use in internal combustion engines operating under unfavorable or severe types of service conditions. These are recommended for maximum engine protection under all driving conditions.

Oil Viscosity Numbers—SAE Viscosity Numbers indicate only the viscosity or body of the oil, that is, whether an oil is a light or a heavy body oil, and do not consider or include other properties or quality factors.

The lower SAE Viscosity Numbers, such as SAE 5W and SAE 10W which represent the light body oils, are recommended for use during cold weather to provide easy starting and instant lubrication. The higher SAE viscosity Numbers such as SAE 20 and SAE 20W, which represent heavier body oils, are recommended for use during warm or hot weather to provide improved oil economy and adequate lubrication under high operating temperatures.

Oils are available which are designed to combine the easy starting characteristics of the lower SAE Viscosity Number with the warm weather operating characteristics of the higher SAE Viscosity Number. These are termed "multi-viscosity oils;" SAE 5W-20, and SAE 10W-30.

The following chart will serve as a guide for the selection of the correct SAE Viscosity Number for use under different atmospheric temperature ranges, and suggests the appropriate SAE Viscosity Numbers when multi-viscosity oils are used.

If the lowest anticipated temperature during the interval in which the oil will remain in the crankcase, is:	The following SAE Viscosity oils are RECOMMENDED:	Multi-Viscosity oils RECOMMENDED:
32°F	SAE 20W or SAE 20	SAE 10W-30
0°F	SAE 10W	SAE 10W-30
Below 0°F	SAE 5W	SAE 5W-20

NOTE: For sustained high speed driving, when the prevailing daylight temperature is above 90°F, S.A.E. 30 may be used.

Oil Pressure. If the oil pressure registers abnormally high after the engine is thoroughly warmed up, an inspection should be made to ascertain if the oil lines and passages are restricted.

Fig. 79—Oil Gauge Rod in Pan

Maintaining Crankcase Oil Level. The Oil Gauge Rod (fig. 79) is marked "Full" and "Add Oil." These notations have broad arrows pointing to the level lines.

The oil level should be maintained between the two lines; neither going above the "Full" line nor under the "Add Oil" line.

Check the oil level frequently and add oil when necessary.

When to Change Crankcase Oil. To insure continuation of best performance, low maintenance cost and long engine life, it is necessary to change the crankcase oil whenever it becomes contaminated with harmful foreign materials. Under normal driving conditions, draining the crankcase and replacing with fresh oil every 2000 miles is recommended.

Under the driving conditions described in the following paragraphs, it may become necessary to drain the crankcase oil more frequently.

Frequent long runs at high speed, or continuous driving with heavy loads, with the resultant high engine operating temperatures, may oxidize the oil and may result in the formation of sludge and varnish. While no definite drain periods can be recommended under these conditions, they should be more frequent than under normal driving conditions.

Driving over dusty roads or through dust storms introduces abrasive material into the engine. Carburetor air cleaners decrease the amount of dust that may enter the crankcase. The frequency of draining depends upon severity of dust conditions and no definite draining periods can be recommended, but should be more frequent than under normal driving conditions.

Short runs in cold weather, such as city driving, and excessive idling, do not permit thorough warming up of the engine and water may accumulate in the crankcase from condensation of moisture produced by the burning of the fuel. Water, in the crankcase, may freeze and interfere with proper oil circulation. It also promotes rusting and may cause clogging of oil screens and passages. Under normal driving conditions

this water is removed by the crankcase ventilator. But if water accumulates it should be removed by draining the crankcase as frequently as may be required.

It is always advisable to let the engine reach normal operating temperature before draining the crankcase. The benefit of draining is, to a large extent, lost if the crankcase is drained when the engine is cold as some of the suspended foreign material will cling to the sides of the oil pan and will not drain out readily with the slower moving oil. Flushing the crankcase with oils or solutions other than a good grade of SAE 10W engine oil is not recommended.

CRANKCASE DILUTION

Probably the most serious phase of engine oil deterioration is that of crankcase dilution, which is the thinning of the oil by fuel vapors leaking by the pistons and rings and mixing with the oil.

Leakage of fuel, or fuel vapors, into the oil pan mostly occurs during the "warming-up" period, when the fuel is not thoroughly vaporized and burned.

Automatic Control Devices to Minimize Crankcase Dilution. The Chevrolet engine is equipped with automatic devices which aid greatly in minimizing the danger of crankcase dilution.

Rapid warming up of the engine is aided by the thermostatic water temperature control, which automatically prevents circulation of the water in the cooling system until it reaches a predetermined temperature.

Thermostatic heat control on the exhaust manifold, during the warming-up period, automatically directs the hot exhaust gases against the center of the intake manifold, greatly aiding the proper vaporization of the fuel.

Sparing use of the choke reduces danger of raw, or unvaporized fuel entering the combustion chamber and leaking into the oil reservoir.

An efficient crankcase ventilating system drives off fuel vapors and aids in the evaporization of the raw fuel and water which may find its way into the oil reservoir.

Control by Truck Owner Under Abnormal Conditions. Ordinarily the above automatic control devices will minimize, or eliminate, the danger of crankcase dilution.

However, there are abnormal conditions of service when the truck owner must aid in the control of crankcase dilution.

Short runs in cold weather, such as city driving and excessive idling, do not permit the thorough warming up of the engine nor the efficient operation of automatic control devices. It is recommended that the oil be changed more often when the truck is subjected to this type of operation.

Poor mechanical condition of the engine, such as scored cylinders, poor ring fit, "sloppy" or loose pistons, faulty valves, and poor ignition will increase crankcase dilution. Keep your truck in good mechanical condition.

Poor fuels which contain portions hard to ignite and slow to burn will increase crankcase dilution. Use good fuel.

Water in Crankcase. Serious lubrication troubles may result in cold weather due to an accumulation of water in the oil pan.

A slight amount of exhaust gases pass the pistons and rings, even under the most favorable conditions, and cause the formation of water in the oil pan, in a greater or lesser degree, until the engine becomes warm. When the engine becomes thoroughly warm, the crankcase will no longer act as a condenser and all of these gases will pass out through the crankcase ventilator system. Short runs in cold weather, such as city driving, will aggravate this condition.

Corrosion. Practically all present day engine fuel contains a small amount of sulphur which, in the state in which it is found, is harmless; but this sulphur on burning, forms certain gases, a small portion of which is likely to leak past the pistons and rings and reacting with water, when present in the crankcase, form corrosive acids.

As long as the gases and the internal walls of the crankcase are hot enough to keep water vapor from condensing, no harm will result; but when an engine is run in low temperatures, moisture will collect and unite with the gases formed by combustion; thus, acid will be formed and is likely to cause serious etching or pitting. This etching, pitting or corrosion, when using fuel containing considerable sulphur, manifests itself in excessively rapid wear on piston pins, camshaft bearings and other moving parts of the engine, and can be traced back to the character of fuel used, or a condition of the engine, such as excessive blow-by or improper carburetor adjustment.

OIL FILTER. It is recommended that, under normal conditions, the filter cartridge be replaced after the first 1000 miles and every 2000 miles thereafter.

Severe dust conditions may warrant replacing the cartridge at correspondingly lower mileages.

FUEL FILTER. If the engine is equipped with a fuel filter, the filter element should be replaced seasonally or at intervals of not more than 5,000 miles.

WATER PUMP. The permanently sealed ball bearing water pump does not require lubrication by the truck owner.

STARTING MOTOR. Starting Motor end frames are equipped with oil-less bearings which do not require lubricant.

GENERATOR. Every 1,000 miles, fill oil cup at each end to the top with a light oil or engine oil.

BATTERY. Saturate battery terminal washer with engine oil every 1000 miles.

DISTRIBUTOR. On 6 cylinder models, turn down lubricant cup ½ turn every 1000 miles. Refill cup with chassis lubricant as necessary. Every 5000 miles, the distributor cap should be removed and ½ drop of light engine oil applied to breaker lever pivot and remove rotor and apply a small amount of Delco Ball Bearing and Cam Lubricant or high melting point wheel bearing lubricant on cam surface.

On 8-cylinder models, fill hinge cap oiler with light engine oil every 1000 miles. Every 5000 miles, the distributor cap should be removed and ½ drop of light engine oil applied to breaker lever pivot. Do not use any lubricant on cam lubricator wick, replace wick when contact points are replaced.

On spinner governor type distributors, replace air cleaner every 10,000 miles or oftener under adverse conditions.

FOUR WHEEL DRIVE COMPONENTS

(Refer to Lubrication Chart at end of Chapter)

REAR AXLE AND CONVENTIONAL TRANSMISSION

Recommended Lubricants.

Where SAE 90 viscosity grade is recommended for "year around" service, SAE 80 viscosity grade may be used when extremely low temperatures are encountered for protracted periods during winter months.

Conventional and 2-Speed Rear Axles – S.A.E. 90 "Multi-Purpose" Gear Lubricant.

Caution: Straight Mineral Oil Gear Lubricants must not be used in Hypoid Rear Axles or 2-Speed Rear Axles.

Positraction Rear Axle—G.M. No. 3758790 or 3758791 lubricant.

Power Divider (Tandem Axle Trucks)—April 1 to October 1 (approximately)—SAE 140 Straight Mineral Oil Lubricant, or SAE 140 "Multi-Purpose" Gear Lubricant. October 1 to April 1 (approximately)—SAE 90 Straight Mineral Oil Lubricant, or SAE 90 "Multi-Purpose" Gear Lubricant.

Conventional Transmissions—S.A.E. 90 Straight Mineral Oil Gear Lubricant, or S.A.E. 90 "Multi-Purpose" Gear Lubricant.

Rear Axle Electric Shift Unit—SAE 10 engine oil.

Lubricant Additions—Transmission. The lubricant level in the housing should be checked periodically and with unit at operating temperature, lubricant should be level with bottom of filler plug hole.

It is recommended that any additions required to bring up the lubricant level be made, using the same type of lubricant as in the housing.

Lubricant Additions—Rear Axle Electric Shift Unit. Every 10,000 miles or 3 months, whichever comes first, fill to level of filler plug hole.

Lubricant Changes — Conventional and 2-Speed Rear Axles. The rear axle in your truck, as you receive it, is filled with a special lubricant which should be drained at the end of 1000 miles and refilled with a SAE 90 "Multi-Purpose" Gear Lubricant equivalent to G.M. Spec. No. 4735-M. If high ambient temperatures prevail, SAE 140 may be used.

The axle lubricant level should be checked every 1000 miles and the lubricant drained and refilled every 15,000 miles. If vehicle is operated in exceptionally heavy work or at continuous high speeds oil should be changed every 10,000 miles. It may be necessary to change oil more often if vehicle is used off road in dusty areas.

Lubricant Changes — Positraction Rear Axle. The positraction rear axle should be drained and refilled after the first 1000 miles of operation. Check the lubricant every 1000 miles thereafter and drain and refill after every 10,000 miles. When refilling, use only G.M. No. 3758790 or 3758791 lubricant. The use of improper lubricant may cause the positraction rear axle to "chatter."

Lubricant Changes—Power Divider. For best results the lubricant in these units should be changed every 5000 miles and seasonally as recommended in previous paragraph under "Recommended Lubricants".

HYDRA-MATIC TRANSMISSION

Every 1,000 miles the fluid level should be checked and fluid added as described below when necessary. Use only "Automatic Transmission Fluid Type A" bearing an AQ-ATF number. This fluid is available in sealed containers at all Authorized Chevrolet Dealers and oil company service stations. A good grade of 10W engine oil may be used temporarily in emergencies but should be replaced with Automatic Transmission Fluid Type A, as soon as possible.

Every 25,000 miles the transmission fluid should be drained and refilled as described herein.

Checking Hydra-Matic Fluid. Check transmission fluid level with transmission at normal operating temperature. Otherwise, the engine and transmission must be warmed to operating temperature. Engine must be running while checking or adding fluid.

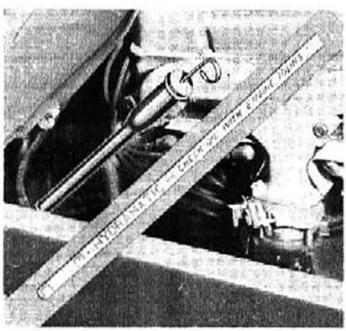


Fig. 80—Checking Hydra-Matic Transmission Fluid Level

1. Set parking brake and move control lever into (N) position; then start engine. Run engine at idling speed until engine and transmission have reached normal operating temperature.

2. Remove all dirt or gravel from area around indicator in the engine compartment on late models (fig. 80), or under the access hole cover in the floor pan on early models. With engine still idling, remove indicator, wipe clean, re-insert, and carefully withdraw again.

Exercise extreme care to prevent dirt from entering filler tube when checking fluid level. Add fluid (Step 3) only when level reaches the "L" mark (1 Qt. low) on the indicator.

3. With engine operating at normal idle, add sufficient Automatic transmission fluid to bring level to "F" (full) mark on indicator.

CAUTION: Fluid level should never be higher than "F" mark on indicator, when fluid is at operating temperature. An excessive amount of fluid will cause spinning drums to aerate fluid.

Expanding fluid may then be forced out of case around indicator. Sufficient fluid may be lost to damage the transmission seriously.

4. Reinstall indicator.

Draining and Refilling the Hydra-Matic Transmission. At the 25,000 mile interval the transmission should be drained and refilled. Approximately 8½ quarts* of Automatic Transmission Fluid—Type A—are required to refill transmission after torus cover and oil pan have been drained. Drain oil immediately after operation, while fluid is still warm. Do not flush transmission after draining.

1. Turn flywheel until torus cover plug is at lowest point. Remove torus cover drain plug (fig. 81) and thoroughly drain torus cover.

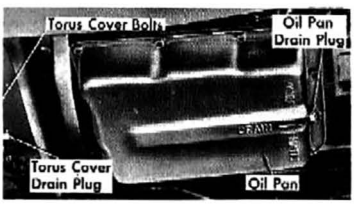


Fig. 81—Drain Plugs on Transmission Without Cooler

2. Remove oil pan drain plug (fig. 81) and thoroughly drain oil pan.

3. When drainage is completed install oil pan drain plug. Tighten drain plug to 35-45 foot-pounds torque.

4. Coat torus cover plug with sealer (Permatex No. 3) and install in cover. Tighten plug to 6-7 ft. lbs. torque.

5. Remove oil indicator (see "Checking Hydra-Matic Fluid") and wipe it clean.

6. Pour six* quarts of "Automatic Transmission Fluid—Type A" into transmission. Be sure container and spout or funnel is clean.

7. Set parking brake and position control lever in "N" position and start engine. Run engine at idling speed for 3 to 5 minutes, to fill coupling.

8. With engine idling, then add sufficient fluid (approximately 2½ quarts) to bring oil level to "L" (low) mark on indicator. Continue to run engine until normal temperature is attained; then recheck fluid level to "F" (full) mark.

*** Add one additional quart if equipped with transmission oil cooler.**

POWERMATIC TRANSMISSION

Every 1000 miles the fluid level should be checked and fluid added as described below when necessary. Use "Automatic Transmission Fluid—Type A," or "Hydraulic Transmission

Fluid—Type C." A good grade of 10W engine oil may be used temporarily in emergencies, but should be replaced with Automatic Transmission Fluid as soon as possible.

The transmission fluid should be drained and refilled at regular intervals as described herein.

Checking Powermatic Fluid – Check transmission fluid level with transmission at normal operating temperature, otherwise the engine and transmission must be warmed to operating temperature. Engine must be running while checking or adding fluid.

1. Start engine, set parking brake and move control lever into ("3-HI") position. Run engine at 1000 rpm until engine and transmission have reached normal operating temperature.

2. Remove any dirt or gravel from area around indicator in right side of engine compartment. With engine running at 1000 rpm remove indicator from case, wipe clean, reinsert and carefully withdraw again.

Exercise extreme care to prevent dirt from entering filler tube when checking fluid level.

Add fluid only when level reaches L mark (1 qt. low) on the indicator.

3. With engine operating at 1000 rpm add sufficient "Automatic Transmission Fluid—Type A" or "Type C"—to bring level to full mark on indicator.

CAUTION: Fluid level should never be higher than "F" mark on indicator when fluid is at operating temperature. An excessively full transmission will result in aeration of the fluid. The expanding fluid may then be forced out of the filler tube. Sufficient fluid may be lost to seriously damage the transmission.

4. Reinstall indicator and turn the cap ¼ turn to lock.

Draining and Refilling the Powermatic Transmission – At the 5,000 mile interval under normal operating conditions for off highway or urban operation the transmission should be drained and refilled and the filter should be replaced. Changing fluid and replacing filter may be done at 10,000 mile intervals for normal highway operation. Approximately 9 qts. of fluid are required to refill the transmission after the pan has been drained. Drain immediately after operation —while fluid is still warm. Do not flush transmission after draining.

1. **Loosen** filter cover and allow to drain thoroughly. Do not completely remove cover with transmission full or fluid will gush out in considerable quantity.

2. When drainage is complete, remove cover and filter and install new filter. Tighten filter cover to 8-10 ft. lbs. torque.

3. Pour eight quarts of Automatic Transmission Fluid into transmission. Be sure container and spout or funnel is clean.

4. Set parking brake. Set control lever in (N) position and start engine. Move control lever to (3-HI) position.

5. To complete filling: with engine operating at 1000 rpm, add sufficient fluid (approximately 1 qt.) to bring level to "L" (low) mark on indicator. With service brake set, shift transmission through all ranges. Continue to run engine until normal temperature is attained; then recheck fluid level and add sufficient fluid to bring level to full mark on indicator.

UNIVERSAL JOINT

All universal joints are the needle bearing type equipped with lubrication fittings and should be lubricated every 1000 miles with "Multi-purpose" Gear Lubricant.

PROPELLER SHAFT SLIP JOINTS

Propeller shaft slip joints equipped with a lubrication fitting are used on all model trucks except the 3100 and the 3200, 3400 and 3600 equipped with standard production three-speed transmission. These fittings should be lubricated every 1000 miles with chassis lubricant.

PILLOW BLOCK (Tandem Axle Truck)

The pillow block mounted on the forward axle on tandem axle trucks is equipped with a lubrication fitting. Chassis lubricant should be used at this point every 1,000 miles.

WHEEL BEARINGS

½, ¾, 1 and 1½ Ton. Front wheels are equipped with ball bearings and should be packed with a high-melting point front wheel bearing lubricant.

L.C.F. 2 and 2½ Ton. Front wheels are equipped with tapered roller bearings and should be packed with a soft smooth lubricant.

CAUTION: "Long fibre" or "Viscous" type of lubricants should not be used.

Due to the weight of the tire and wheel assembly it is recommended that they be removed from hub before lubricating bearings to prevent damage to oil seal. Then remove the front wheel hub to lubricate the bearings. The bearings should be thoroughly cleaned before repacking with lubricant. Do not pack the hub

between the inner and outer bearing assemblies, or the hub cap, as this excessive lubrication results in the lubricant working out into the brake drum and linings.

In mounting the front hubs, great care must be taken not to damage seals and to properly adjust bearings, (see page 49).

The **rear wheel** bearings receive their lubrication from the rear axle. When installing bearings which have been cleaned, repack with a smooth type grease. Rear wheel bearings on 2½ ton models should be repacked with wheel bearing lubricant every 10,000 miles.

CHASSIS

For chassis lubrication, consult the lubrication chart, which shows the points to be lubricated and how often the lubricant should be applied.

The term "Chassis Lubricant" as used in this manual, describes a semi-fluid lubricant designed for application by commercial pressure gun equipment. It is composed of mineral oil (usually 300 to 500 second Saybolt Universal viscosity at 100° F.) combined with approximately 8% soap, or soaps, which are insoluble in water.

Spring Shackles and Spring Bolts. The spring shackles and spring bolts are equipped with pressure gun lubrication fittings, and should be lubricated with lubricant recommended under "Chassis Lubrication."

Brake and Clutch Pedals

On Forward Control models the clutch pedal is lubricated from a pressure gun lubrication fitting in the end of the shaft and the brake pedal is also equipped with a lubrication fitting. On the other truck models, the brake and clutch pedals have separate fittings in the ends of the shafts, except the 8 and 10,000 series which have a fitting in the clutch pedal support casting. On all Forward Control and L. C. F. models, the clutch idler support is equipped with a lubrication fitting. Use chassis lubricant at these points.

Hydrovac and Air Over Hydraulic Brakes

The Hydrovac and air over hydraulic assemblies are equipped with lubrication plugs in the closed end of the shell approximately 1" from the bottom of the cylinder. Fill to plug level with Bendix Vacuum Cylinder Oil or Delco shock absorber fluid at 10,000 mile intervals or each six month period, especially prior to the start of cold weather.

Conventional Steering Gear

The steering gear is filled at the factory with an all-season

gear lubricant. Seasonal change of this lubricant is unnecessary and the housing should not be drained. Whenever required, additions should be made using "Multi-Purpose" or "Universal" steering gear lubricants.

Power Steering Gear and Pump

Service gear box every 1000 miles in the same manner as prescribed for the standard steering gears. In addition check fluid in power steering pump reservoir—while hot—and make additions using Automatic Transmission Fluid—Type A—required to bring level to full mark on filler cap dipstick.

Transmission Controls

The steering column manual shift mechanism on ½ Ton and ¾ Ton models equipped with 3 speed transmission is factory lubricated and should not require periodic lubrication. However, should the shifting effort become noticeably greater, remove the cap on the gearshift control box and fill box with a soft smooth grease.

The shifting, retarding brake (Powermatic), and throttle valve linkage for both Hydra-Matic and Powermatic transmissions as well as the Tandem Axle Power Divider shift and declutching controls should be lubricated periodically. Contact points between rods, idlers, bell cranks and supports should be lubricated with SAE 10 engine oil.

Full Air Brakes

Compressor—2000 miles—Remove compressor air strainer and wash all parts including curled hair in cleaning solvent. Saturate curled hair in clean engine oil and squeeze dry before replacing in strainer.

Governor—6 months or 10000 miles—Remove both governor air filters and wash in cleaning solvent not detrimental to metal, nylon or rubber.

Brake Valve—Monthly or 2000 miles—Lubricate lever roller, hinge pin and linkage with engine oil.

Lift boot away from mounting plate and put a few drops of SAE 20 engine oil between mounting plate and plunger.

Slack Adjusters—Monthly or 1000 miles—Remove grease plug (if installed) on slack adjuster, install grease fitting and lubricate with chassis lubricant.

GENERAL NOTE

Low-Cab-Forward trucks are provided with an access panel in the dash panel which may be removed to service the distributor. All other engine compartment lubrication points are readily accessible after raising the hood.

½ TON TRUCK LUBRICATION

1. Front Spring Shackle (2 each side) ..... 1000 mile
2. Generator (2 oil cups) (see page 80) ..... 1000 mile
3. King Pin (2 each side) ..... 1000 mile
4. Front Wheel Bearings (see page 85) ..... 10,000 mile
5. Tie Rod (1 each side) ..... 1000 mile
6. Steering Connecting Rod (1 each end) ..... 1000 mile
7. Steering Gear (see page 86) ..... 1000 mile
8. Distributor (see page 80) ..... 1000 and 5000 mile
9. Front Spring Bolt (1 each side) ..... 1000 mile
10. Air Cleaner (see page 28) ..... When Required
11. Throttle Bell Crank ..... 1000 mile
12. Brake and Clutch Pedals (see page 86) ..... 1000 mile
13. Transmission (see pages 80-84) ..... 1000 and 25,000 mile
14. Universal Joint (1 each—see page 85) ..... 1000 mile
15. Rear Spring Bolt (1 each side) ..... 1000 mile
16. Rear Axle (see page 80) ..... 1000 and 10,000 mile
17. Rear Spring Shackle (2 each side) ..... 1000 mile
18. Parking Brake Cable ..... 1000 mile
19. Propeller Shaft Slip Joint—3-speed Heavy Duty and 4-speed transmission (see page 85) ..... 1000 mile

NOTE: Under severe service conditions it is recommended that chassis lubrication be performed at more frequent intervals than shown above.

Lubricant Key for Figure 82

CL Chassis Lubricant

EO Light Engine Oil

WB Wheel Bearing Lubricant

SG Steering Gear Lubricant

GL Multi-purpose Gear Lubricant

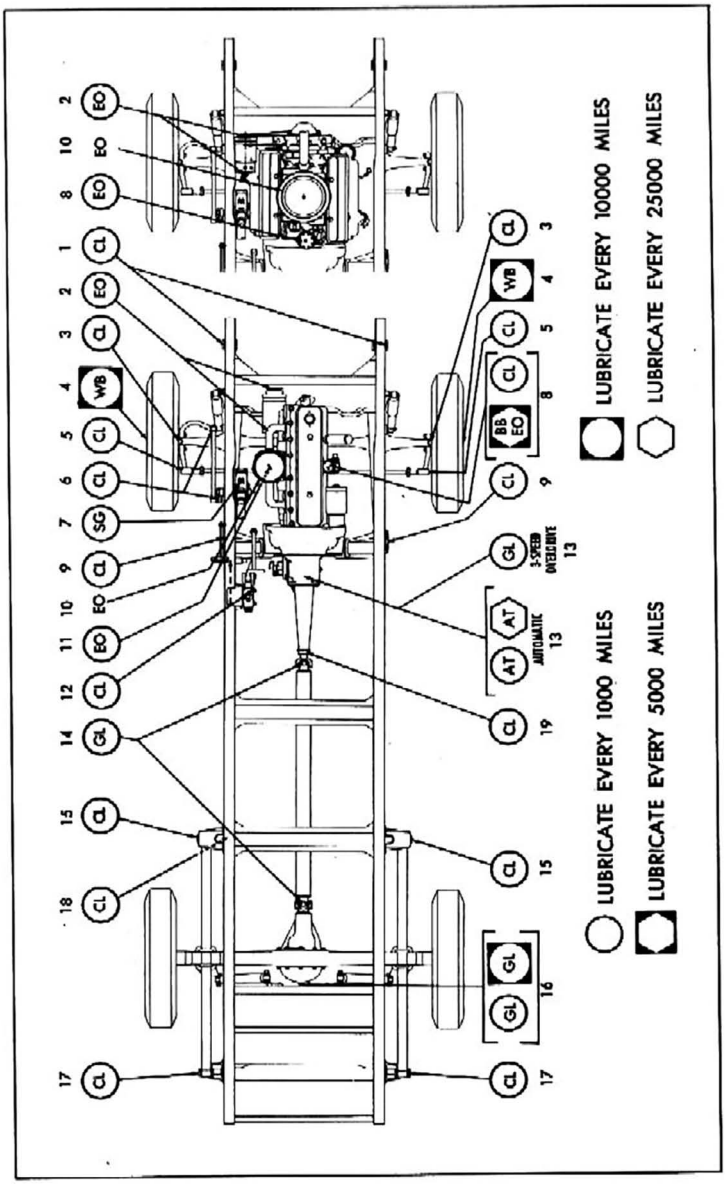


Fig. 82—½ Ton Lubrication Chart

¾ TON TRUCK LUBRICATION

1. Front Spring Shackle (2 each side) ..... 1000 mile
2. Generator (2 oil cups) (see page 80) ..... 1000 mile
3. King Pin (2 each side) ..... 1000 mile
4. Front Wheel Bearings (see page 85) ..... 10,000 mile
5. Tie Rod (1 each side) ..... 1000 mile
6. Steering Connecting Rod (1 each end) ..... 1000 mile
7. Steering Gear (see page 86) ..... 1000 mile
8. Distributor (see page 80) ..... 1000 and 5000 mile
9. Front Spring Bolt (1 each side) ..... 1000 mile
10. Air Cleaner (see page 28) ..... When Required
11. Throttle Bell Crank ..... 1000 mile
12. Brake and Clutch Pedals (see page 86) ..... 1000 mile
13. Transmission (see pages 80-84) ..... 1000 and 25,000 mile
14. Universal Joint (1 each see page 85) ..... 1000 mile
15. Rear Spring Bolt (1 each side) ..... 1000 mile
16. Rear Axle (see page 80) ..... 1000 and 10,000 mile
17. Rear Spring Shackle (2 each side) ..... 1000 mile
18. Parking Brake Cable ..... 1000 mile
19. Propeller Shaft Slip Joint (Hydra-Matic transmission) ..... 1000 mile
20. Propeller Shaft Slip Joint (3-speed Heavy-Duty and 4-speed transmission) ..... 1000 mile
21. Universal Joint (all models except those equipped with standard 3-speed or Hydra-Matic transmission) (1 each—see page 85) ..... 1000 mile

NOTE: Under severe service conditions it is recommended that chassis lubrication be performed at more frequent intervals than shown above.

Lubricant Key for Figure 83

CL Chassis Lubricant
EO Light Engine Oil
WB Wheel Bearing Lubricant
SG Steering Gear Lubricant
GL Multi-purpose Gear Lubricant

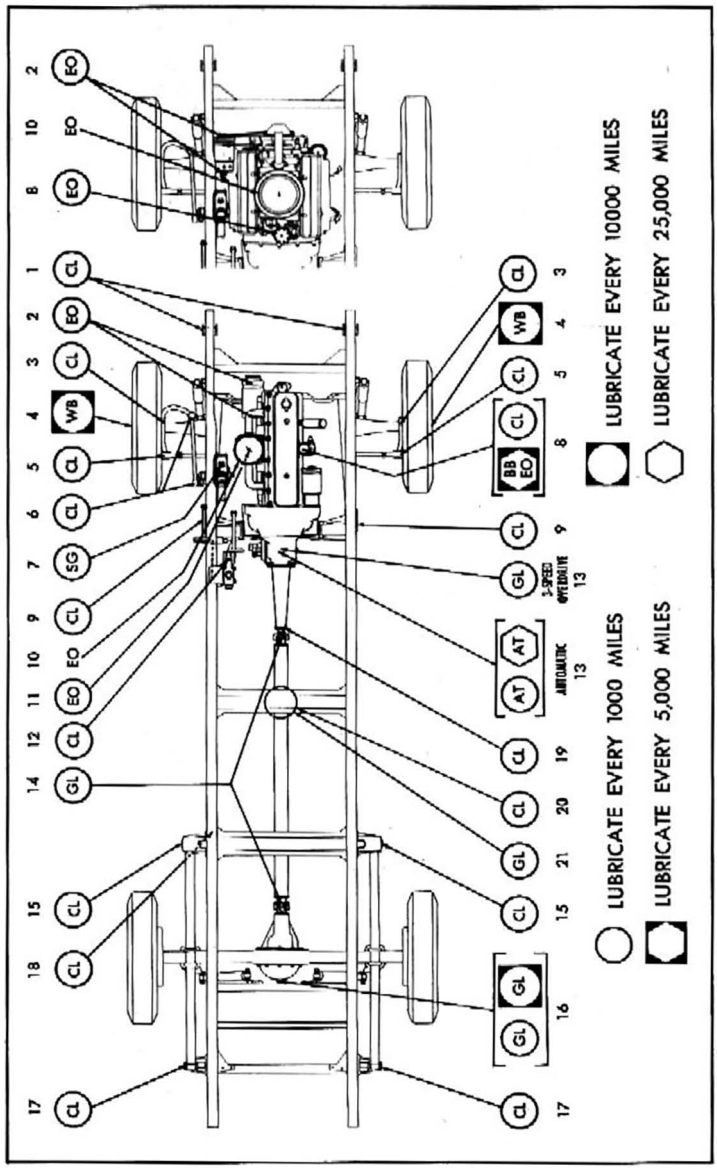


Fig. 83—¾ Ton Lubrication Chart

1 TON TRUCK LUBRICATION

1. Front Spring Shackle (2 each side) ..... 1000 mile
2. Generator (2 oil cups) (see page 80) ..... 1000 mile
3. King Pin (2 each side) ..... 1000 mile
4. Front Wheel Bearings (see page 85) ..... 10,000 mile
5. Tie Rod (1 each side) ..... 1000 mile
6. Steering Connecting Rod (1 each end) ..... 1000 mile
7. Steering Gear (see page 86) ..... 1000 mile
8. Distributor (see page 80) ..... 1000 and 5000 mile
9. Front Spring Bolt (1 each side) ..... 1000 mile
10. Air Cleaner (see page 28) ..... When Required
11. Throttle Bell Crank ..... 1000 mile
12. Brake and Clutch Pedals (see page 86) ..... 1000 mile
13. Transmission (see pages 80-84) ..... 1000 and 25,000 mile
14. Universal Joint (1 each—see page 85) ..... 1000 mile
15. Rear Spring Bolt (1 each side) ..... 1000 mile
16. Rear Axle (see page 80) ..... 1000 and 10,000 mile
17. Rear Spring Shackle (2 each side) ..... 1000 mile
18. Propeller Shaft Slip Joint ..... 1000 mile
19. Parking Brake Operating Lever ..... 1000 mile

NOTE: Under severe service conditions it is recommended that chassis lubrication be performed at more frequent intervals than shown above.

Lubricant Key for Figure 84

CL Chassis Lubricant

EO Engine Oil

WB Wheel Bearing Lubricant

SG Steering Gear Lubricant

GL Multi-purpose Gear Lubricant

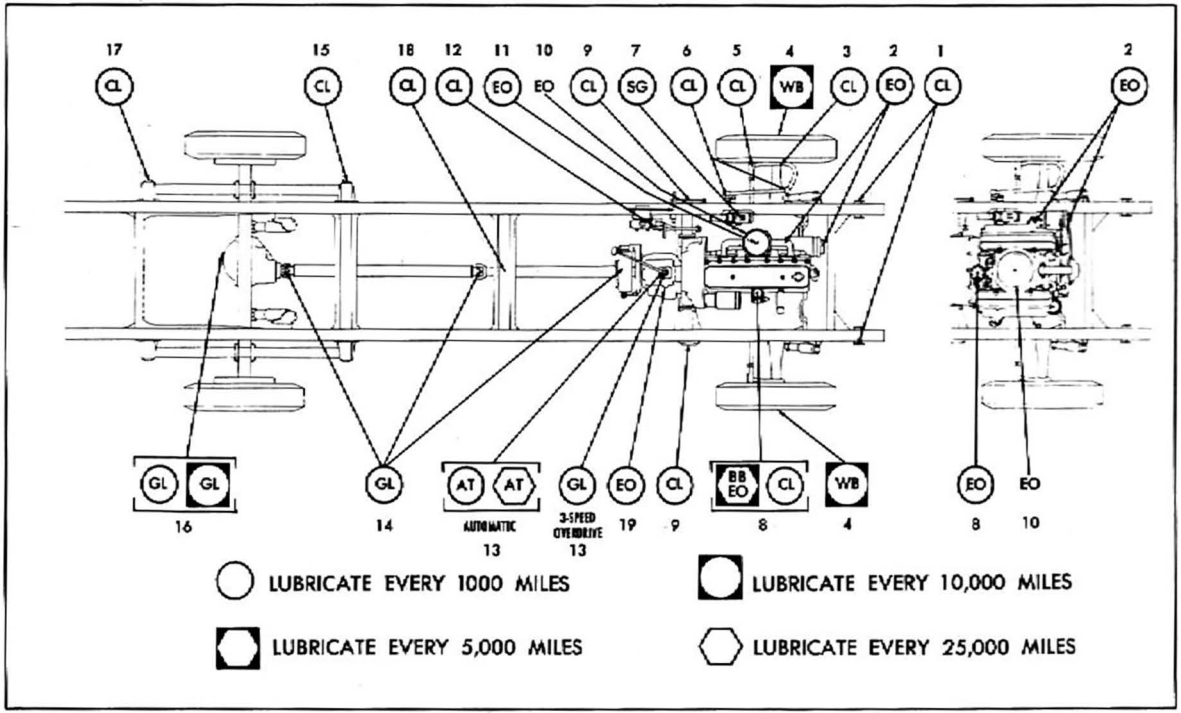


Fig. 84—1 Ton Lubrication Chart

1½ AND 2 TON TRUCK LUBRICATION

1. Front Spring Shackle (2 each side) ..... 1000 mile
2. Generator (2 oil cups) (see page 80) ..... 1000 mile
3. King Pin (2 each side) ..... 1000 mile
4. Front Wheel Bearings (see page 85) ..... 10,000 mile
5. Tie Rod (1 each side) ..... 1000 mile
6. Steering Connecting Rod (1 each end) ..... 1000 mile
7. Steering Gear (see page 86) ..... 1000 mile
8. Distributor (see page 80) ..... 1000 and 5000 mile
9. Front Spring Bolt (1 each side) ..... 1000 mile
10. Air Cleaner (see page 28) ..... When Required
11. Throttle Bell Crank ..... 1000 mile
12. Brake and Clutch Pedals (see page 86) ..... 1000 mile
13. Transmission (see pages 80-84) ..... 1000 and 25,000 mile
14. Universal Joint (1 each—see page 85) ..... 1000 mile
15. Rear Spring Bolt (1 each side) ..... 1000 mile
16. Rear Axle (see page 80) ..... 1000 and 10,000 mile
17. Rear Spring Shackle (2 each side) ..... 1000 mile
18. Propeller Shaft Slip Joint ..... 1000 mile
19. Hydrovac or Air Over Hydraulic ..... 10,000 mile
20. Parking Brake Operating Lever ..... 1000 mile
21. 2½ Ton (H.D.) Rear Wheel Hub Bearings ..... 10,000 mile

NOTE: Under severe service conditions it is recommended that chassis lubrication be performed at more frequent intervals than shown above.

Lubricant Key for Figure 85

CL Chassis Lubricant

EO Engine Oil

WB Wheel Bearing Lubricant for Ball Bearings
Soft Smooth Grease for Roller Bearings

SG Steering Gear Lubricant

BL Bendix Vacuum Cylinder Oil

GL Multi-purpose Gear Lubricant

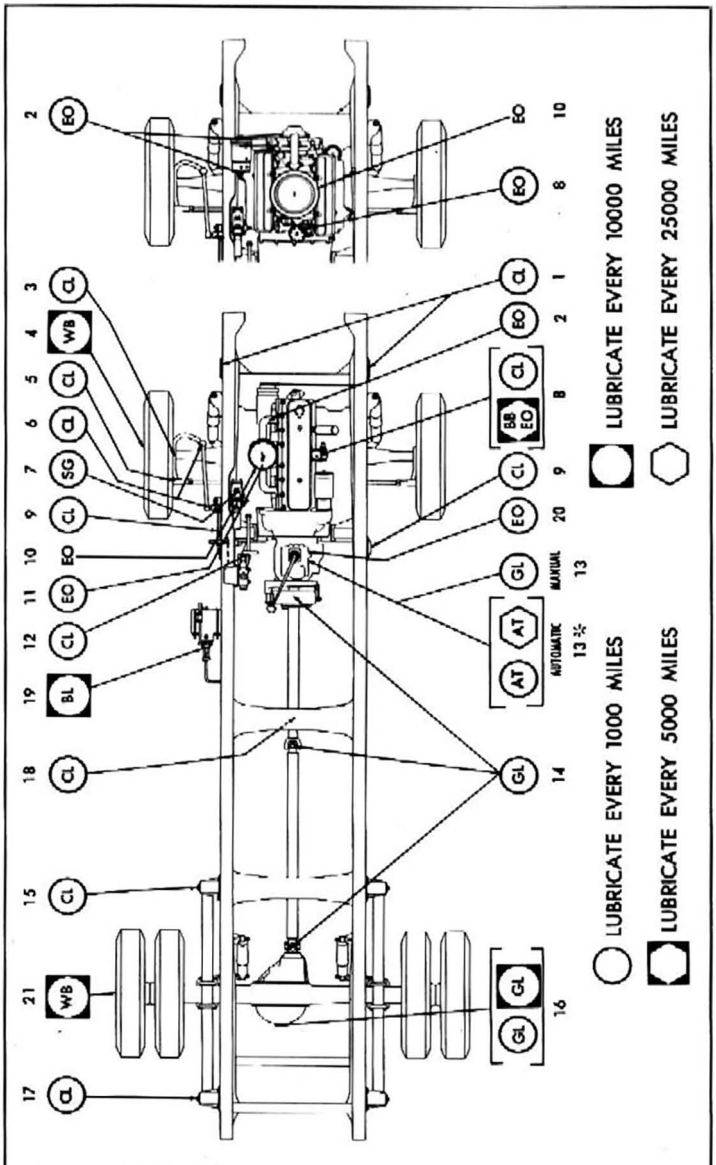


Fig. 85—1½ and 2 Ton Lubrication Chart (4 and 6000 Series)

L.C.F. TRUCK LUBRICATION

1. Front Spring Shackle (2 each side) .....1000 mile
2. Generator (2 oil cups) (see page 80) .....1000 mile
3. King Pin (2 each side).....1000 mile
4. Front Wheel Bearings (see page 85) .....10,000 mile
5. Tie Rods (1 each side).....1000 mile
6. Steering Connecting Rod (1 each end).....1000 mile
7. Steering Gear (see page 86) .....1000 mile
8. Distributor (see page 80) .....1000 and 5000 mile
9. Front Spring Bolt (1 each side).....1000 mile
10. Air Cleaner (see page 28) .....When Required
11. Throttle Bell Crank.....1000 mile
12. Brake and Clutch Pedals (see page 86) .....1000 mile
13. Transmission (see pages 80-84) .....1000 and 25,000 mile
14. Universal Joint (1 each—see page 85) .....1000 mile
15. Rear Spring Bolt (1 each side).....1000 mile
16. Rear Axle (see page 80) .....1000 and 10,000 mile
17. Rear Spring Shackle (2 each side).....1000 mile
18. Propeller Shaft Slip Joint.....1000 mile
19. Hydrovac or Air Over Hydraulic (see page 86) .10,000 mile
20. Parking Brake Operating Lever.....1000 mile

NOTE: Under severe service conditions it is recommended that chassis lubrication be performed at more frequent intervals than shown above.

Lubricant Key for Figure 86

CL Chassis Lubricant
EO Engine Oil
WB Soft Smooth Grease for Roller Bearings
SG Steering Gear Lubricant
BL Bendix Vacuum Cylinder Oil
GL Multi-purpose Gear Lubricant

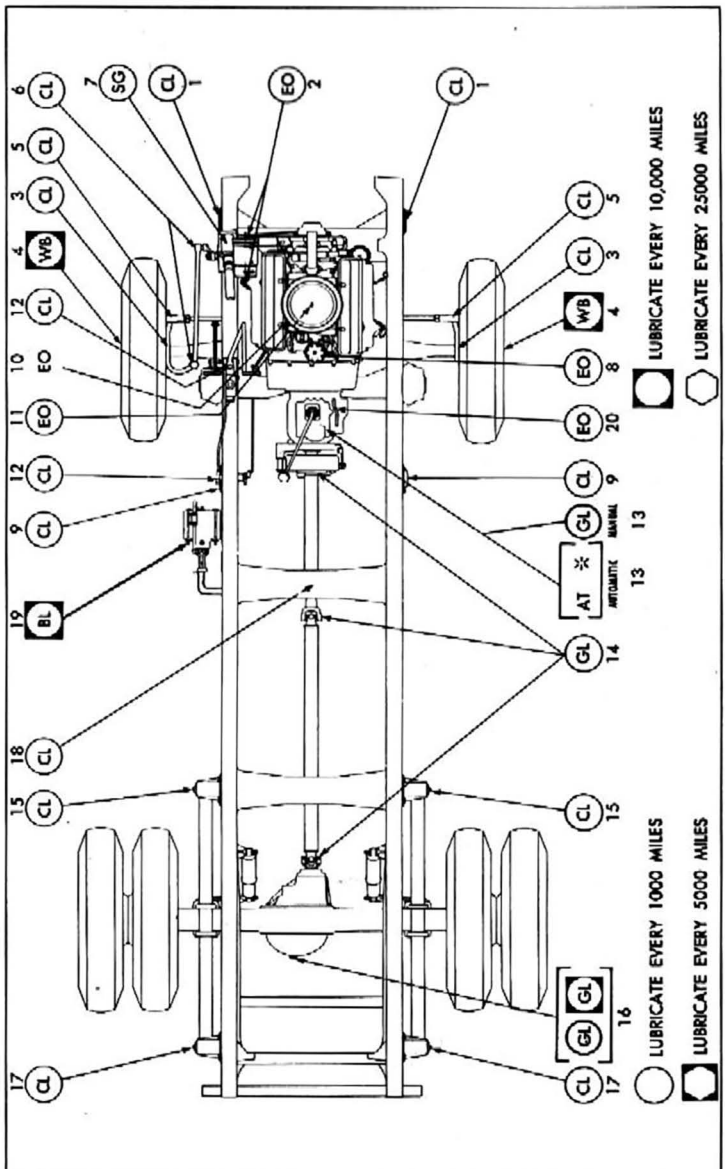


Fig. 86—L.C.F. Lubrication Chart (5000 Series)

TANDEM AXLE MODEL TRUCK LUBRICATION

1. Front Spring Shackle (2 each side) ..... 1000 mile
2. Generator (2 oil cups) (see page 80) ..... 1000 mile
3. King Pin (2 each side) ..... 1000 mile
4. Front Wheel Bearings (see page 85) ..... 10,000 mile
5. Tie Rod (1 each side) ..... 1000 mile
6. Steering Connecting Rod (1 each end) ..... 1000 mile
7. Steering Gear (see page 86) ..... 1000 mile
8. Distributor (see page 80) ..... 1000 mile
9. Front Spring Bolt (1 each side) ..... 1000 mile
10. Air Cleaner (see page 28) ..... When Required
11. Throttle Bell Crank ..... 1000 mile
12. Brake and Clutch Pedals (see page 86) ..... 1000 mile
13. Transmission (see pages 80-84) ..... 1000 mile
14. Universal Joints (1 each—see page 85) ..... 1000 mile
15. Power Divider (see page 81) ..... 5000 mile
16. Rear Axle (see page 80) ..... 1000 and 10,000 mile
17. Pillow Block (see page 85) ..... 1000 mile
18. Propeller Shaft Slip Joint ..... 1000 mile
19. Hydrovac or Air Over Hydraulic (see page 86) . 10,000 mile
20. Parking Brake Operating Lever ..... 1000 mile

NOTE: Under severe service conditions it is recommended that chassis lubrication be performed at more frequent intervals than shown above.

Lubricant Key for Figure 87

CL Chassis Lubricant
EO Light Engine Oil
WB Soft Smooth Grease for Roller Bearings
SG Steering Gear Lubricant
BL Bendix Vacuum Cylinder Oil
GL Multi-purpose Gear Lubricant

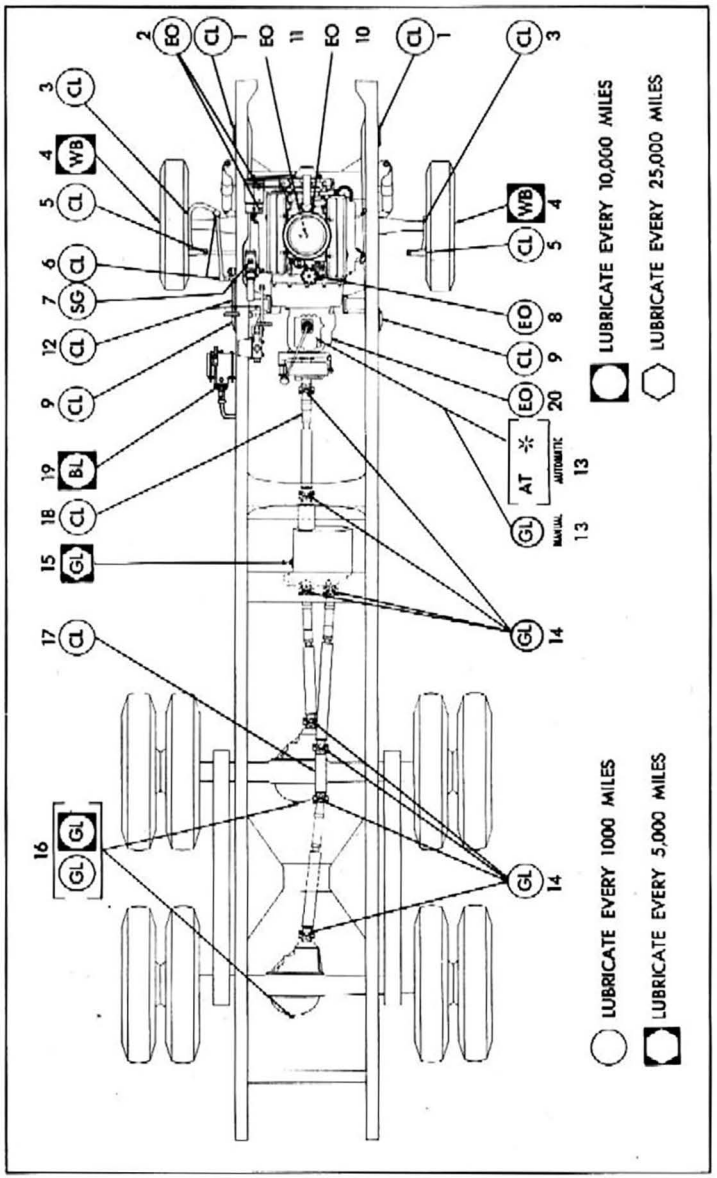


Fig. 87—Tandem Axle Model Lubrication Chart

2½ TON TRUCK LUBRICATION

1. Front Spring Shackle (2 each side) ..... 1000 mile
2. Generator (2 oil cups) (see page 80) ..... 1000 mile
3. King Pin (2 each side) ..... 1000 mile
4. Front Wheel Bearings (see page 85) ..... 10,000 mile
5. Tie Rod (1 each side) ..... 1000 mile
6. Steering Connecting Rod (1 each end) ..... 1000 mile
7. Steering Gear (see page 86) ..... 1000 mile
8. Distributor (see page 80) ..... 1000 mile
9. Front Spring Bolt (1 each side) ..... 1000 mile
10. Air Cleaner (see page 28) ..... When Required
11. Throttle Bell Crank ..... 1000 mile
12. Brake and Clutch Pedals (see page 86) ..... 1000 mile
13. Transmission (see pages 80-84) ..... 1000 mile
14. Universal Joint (1 each—see page 85) ..... 1000 mile
15. Rear Spring Bolt (1 each side) ..... 1000 mile
16. Rear Axle (see page 80) ..... 1000 and 10,000 mile
17. Rear Spring Shackle (2 each side) ..... 1000 mile
18. Propeller Shaft Slip Joint ..... 1000 mile
19. Hydrovac or Air Over Hydraulic ..... 10,000 mile
20. Parking Brake Operating Lever ..... 1000 mile
21. 2½ Ton (H.D.) Rear Wheel Hub Bearings ..... 10,000 mile

NOTE: Under severe service conditions it is recommended that chassis lubrication be performed at more frequent intervals than shown above.

Lubricant Key for Figure 88

CL Chassis Lubricant
EO Engine Oil
WB Wheel Bearing Lubricant for Ball Bearings
Soft Smooth Grease for Roller Bearings
SG Steering Gear Lubricant
BL Bendix Vacuum Cylinder Oil
GL Multi-purpose Gear Lubricant

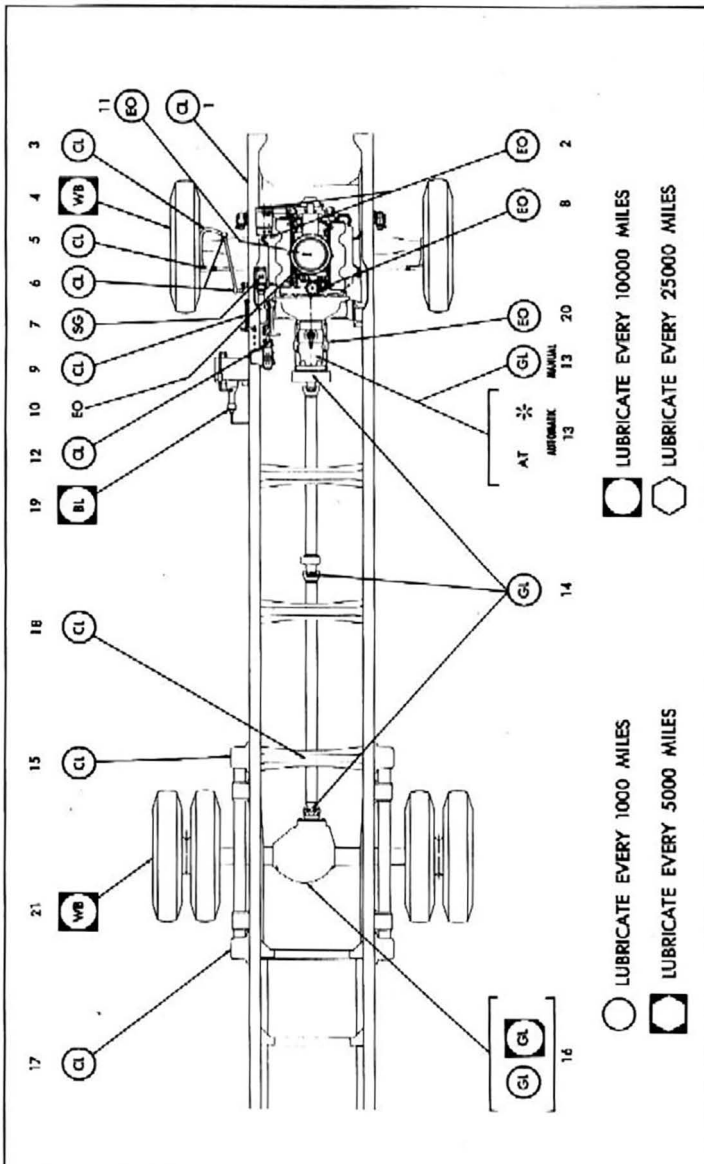


Fig. 88—2½ Ton Lubrication Chart (9000 Series)

FOUR WHEEL DRIVE TRUCK LUBRICATION

No.	Lubrication Points	Lubrication Period	Type of Lubrication	Quantity	Remarks
1	Air Vents—Front Axle and Transfer Case	1000 miles	EO		Clean in solvent, dip in engine oil
2	Transfer Case	1000 miles	MO SAE 90 or GL SAE 90	Keep level at filler plug. Use 5 pints w/o PTO, 6 pints with PTO	Drain and refill every 10000 miles
3	Differential	1000 miles	GL SAE 90	Hot—Up to fill plug. Cold—½" below fill plug. Capacity— 4½ pints—½ Ton 6½ pints— ¾ and 1 Ton	Add lubricant as required. Drain and refill after first 1000 miles and after each 10,000 miles thereafter.
4	Steering Knuckles	1000 miles	CL	As required	Remove slotted pipe plugs from ball ends of axle housing. Lubricate through top fittings until lube comes out of plug holes. Replace pipe plugs securely.
5	Drag Link	1000 miles	CL	As required	One fitting at each end
6	Tie Rod Ends	1000 miles	CL	As required	One fitting at each end
7	Propeller Shaft Slip Joint	1000 miles	CL	As required	
8	Propeller Shaft Universal Joints	1000 miles	MO SAE 140	As required	Do not use Chassis lubricant
9	Control Linkage Points	1000 miles	EO	As required	Use brush or spray to apply engine oil to linkage.
10	Wheel Bearings	10,000 miles or semi-annually	WB	1/16 inch coat of lubricant on spindle hub and knead into bearings	Apply by hand

EO—Engine Oil, CL—Chassis Lubricant, WB—Wheel Bearing Lubricant, GL—Multi-Purpose Gear Lubricant, MO—Straight Mineral Oil.

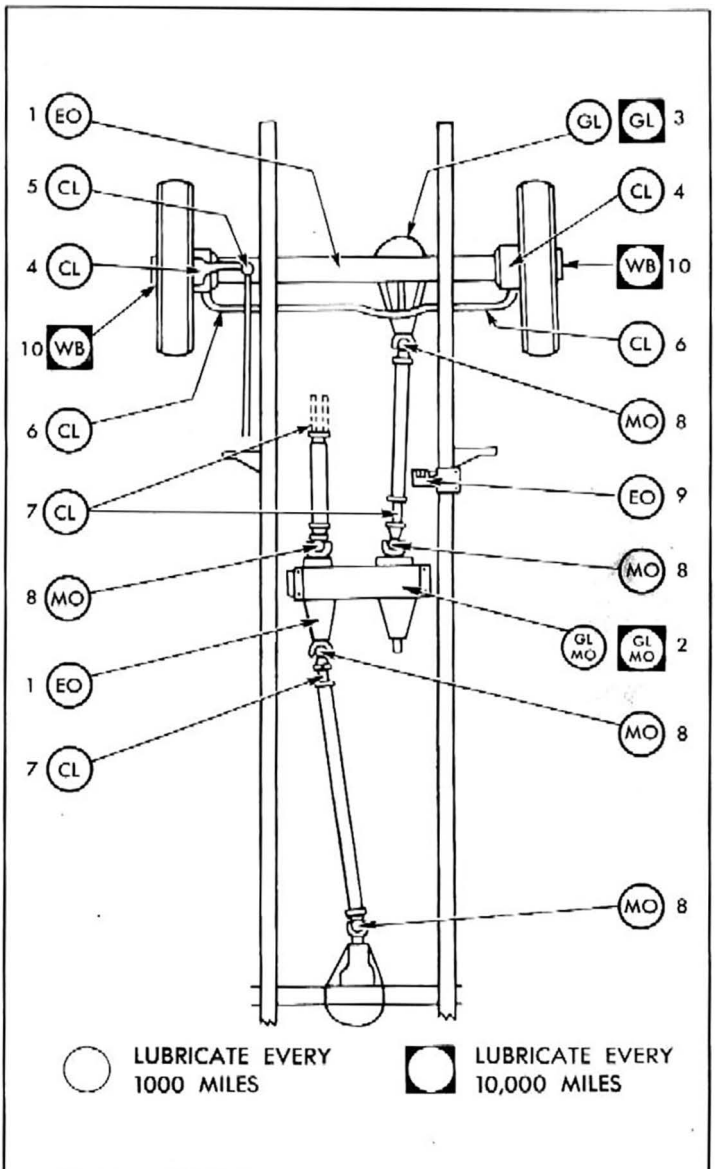


Fig. 89—Four Wheel Drive Lubrication Chart

CHAPTER IV

TECHNICAL DATA

Vehicle Serial Number—Stamped on plate located on left body hinge pillar on all models except flat face cowl which has plate located on left hand cowl inner panel.

Engine Number—Stamped on boss on right front side of 283 and 348 cu. in. V-8 engine cylinder block, or a machined surface on top outer edge of left cylinder bank of 322 cu. in. V-8 engine and on right side to the rear of ignition distributor on 6-cylinder block.

UNIT CAPACITY CHART

Engine	
Thriftmaster	5 qt.
Jobmaster	5 qt.
Trademaster	4 qt.
Taskmaster	5 qt.
Loadmaster	6 qt.
Workmaster	6 qt.
Transmission	
3-Speed	2 pt.
Heavy-Duty 3-Speed	2¾ pt.
4-Speed	6¼ pt.
5-Speed (New Process)	9½ pt.
5-Speed (Clark, Spicer)	12 pt.
Power-Divider	7 pt.
Hydra-Matic (Total)	9 qt.
*(Refill)	8½ qt.
Powermatic (Total Dry)	19 qt.
(Refill)	9 qt.
Gasoline Tank	
½, ¾, 1-Ton (Except Cabs)	17 gal.
1½, 2-Ton (Except Cabs)	18 gal.
Cab Models (Except 2½-Ton)	17½ gal.
2½-Ton Cab	21½ gal.
School Bus	30 gal.
Forward Control Models 104" Wheelbase	15½ gal.
125", 137" Wheelbase	18 gal.
2-Ton	30 gal.
Rear Axle	
½-Ton	4½ pt.
¾ and 1-Ton	6½ pt.
1½-Ton	14 pt.
2-Ton Regular	19½ pt.
2½-Ton Regular	19 pt.
2-Speed	16 pt.
Heavy-Duty 2-Speed	18 pt.
Brakes	1 pt.
Air Cleaner	
Thriftmaster and Trademaster	1 pt.
Others	1 qt.
Oil Filter (Jobmaster)	2 qt.
Oil Filter (V-8)	1 qt.
Thriftmaster (opt.)	1 qt.
Four Wheel Drive	
Front Axle (½-Ton)	4½ pt.
(¾ and 1-Ton)	6½ pt.
Transfer Case	5 pt.
Power Take-off	1 pt.

*Add 1 qt. if equipped with transmission oil cooler.

Cooling System Capacity (add 1 qt. if equipped with heater)

235 cu. in. Engine	(3000 Series) 17 qt.	(4000 Series)	17½ qt.
261 cu. in. Engine	(4/5-Speed) 17 qt.	(Powermatic)	21 qt.
283 cu. in. Engine	(3000 Series) 17½ qt.	(4000 Series)	18 qt.
	(5000 Series—4/5-Speed) 18½ qt.	(Powermatic)	21 qt.
	(6000 Series—4/5-Speed) 18 qt.	(Powermatic)	21½ qt.
	(7, 8000 Series—4/5-Speed) 23 qt.	(Powermatic)	23½ qt.
348 cu. in. Engine	(5-Speed) 29 qt.	(Powermatic)	29½ qt.
322 cu. in. Engine	(5-Speed) 21½ qt.	(Powermatic)	22 qt.
H.D. System—235 cu. in. Engine	(3000 Series) 17½ qt.	(4000 Series)	18 qt.
283 cu. in. Engine	(3000 Series) 18 qt.	(4000 Series)	18½ qt.

LAMP BULB CHART

Location	C.P.	Bulb No.
Headlamp—Type 1 (Inboard)	37½ watts	4001
Headlamp—Type 2 (Outboard)	50-37½	4002
Parking Lamp	4	67
Tail and Stop Lamp	4-32	1034
Instrument Cluster	2	57
Ignition Switch	1	53
Dome Lamp	15	94
Headlamp Beam Indicator	1	53
Overspeed Warning Lamp	4	67

SPECIFICATIONS

6-Cylinder Engines	Thriftmaster	Johmaster
Bore	3 9/16"	3¾"
Stroke	3 15/16"	3 15/16"
Displacement	235.5 cu. in.	261 cu. in.
Firing Order	1-5-3-6-2-4	1-5-3-6-2-4
Compression Ratio	8.25 to 1	8.0 to 1
Horsepower	30.4 (AMA) 135*** (Rated)	33.7 (AMA) 150 (Rated)
No. of Main Bearings	4	4

V-8 Engines	Trademaster	Taskmaster	Workmaster
Stroke	3⅞"	3⅞"	4⅛"
Bore	3"	3"	3¼"
Displacement	283 cu. in.	283 cu. in.	348 cu. in.
Firing Order	1-8-4-3-6-5-7-2	1-8-4-3-6-5-7-2	1-8-4-3-6-5-7-2
Compression Ratio	8.5 to 1	8 to 1	8.0 to 1
Horsepower (AMA)	48	48	54.6
(Rated)	160	160*	230**
No. of Main Bearings	5	5	5

*Super Taskmaster 175 rated Horsepower. **Workmaster Special 184 rated Horsepower. ***Economy option rated 110 Horsepower.

Loadmaster

4" bore, 3.2" stroke, 322 cu. in. displacement, 1-2-7-8-4-5-6-3 firing order, 7.7 to 1 compression ratio, 51.2 A.M.A., 195 rated horsepower, 5 main bearings.

Transmission Ratios

Transmission	Reverse	First (low)	Second	Third	Fourth	Fifth	Sixth
3-Speed	2.94 to 1	2.94 to 1	1.68 to 1	Direct			
H.D. 3-Speed	3.76 to 1	3.17 to 1	1.75 to 1	Direct			
4-Speed	6.78 to 1	7.06 to 1	3.58 to 1	1.71 to 1	Direct		
N.P. 5-Speed	7.85 to 1	7.41 to 1	4.05 to 1	2.40 to 1	1.48 to 1	Direct	
Spicer 5-Speed	7.44 to 1	7.55 to 1	4.17 to 1	2.45 to 1	1.45 to 1	Direct	
Close Ratio	5.90 to 1	5.99 to 1	3.30 to 1	1.94 to 1	1.15 to 1	Direct	
Clark 5-Speed	6.00 to 1	6.06 to 1	3.50 to 1	1.80 to 1	1.18 to 1	Direct	
Hydra-Matic (½ Ton L-6, ½, ¾, 1, 1½ Ton V-8)	4.30 to 1	3.82 to 1	2.63 to 1	1.45 to 1	Direct		
(¾, 1½ Ton L-6)	6.11 to 1	4.71 to 1	3.03 to 1	1.56 to 1	Direct		
Powermatic	6.04 to 1	5.3 to 1	3.8 to 1	2.69 to 1	1.94 to 1	1.39 to 1	Direct

Rear Axle Ratio (semi-floating type)

½-Ton ..... 3.9, 3.38 and 3.7 to 1

Rear Axle Ratios (Full-Floating Type)

¾-Ton	4.57 to 1	H.D. School Bus	7.17 to 1
¾-Ton Forward Control	5.14 to 1		7.20 to 1
1-Ton	5.14 to 1	Tandem	7.20 to 1
1½-Ton	6.17 to 1	H.D. 2½-Ton (Except School Bus and Tandem	7.17 to 1
2 and 2½-Ton	7.20 to 1		7.67 to 1

2-Speed Axles

1½, 2 and 2½-Ton (Chevrolet) ..... 6.40/8.72 to 1
2½ and H.D. 2½-Ton (Except School Bus and Tandem (Eaton Hypoid) ..... 6.50/9.04 to 1
7.17/9.97 to 1
H.D. 2½-Ton (Except School Bus and Tandem (Eaton Spiral Bevel) .... 6.50/8.87 to 1
7.17/9.77 to 1

Spark Plugs (Standard)..... 5, 6, 7, 8000 and School Bus..... C42-1 Com.
3000, 4000 44
9, 10000 (Except School Bus)... C42N Com. (¾" Reach)
Gap—All ..... .035"

Breaker point gap—6-cyl. Engines..... .019" new lever / .016" used lever

Distributor points on 6-cylinder engine to break when steel ball in flywheel is in line with pointer on flywheel housing.

Octane selector should be set for the grade of fuel being used to produce a slight "ping" on acceleration.

Updraft Carburetor idling adjustment ..... ½ to 1½ turns open

Downdraft Carburetor idling adjustment ..... 1 to 2½ turns open

Engine Idling Speed
With Conventional Transmission..... 475 R.P.M.
With Automatic Transmission..... 450-475 R.P.M. in Drive

Valve Clearances (Hot)

	½, ¾ and 1 Ton	1½ and 2 Ton	L.C.F. and 2½ Ton
Intake	.006	.006	(Hydraulic
Exhaust	.018	.020	Lifters)

Clutch pedal free travel..... ¾" to 1"

Brake pedal toe-board clearance..... L.C.F. 1¾"
Others 11/16"

Brake shoe release after slight drag is felt
½-Ton (front and rear) ..... 7 adj. notches
¾ and 1-Ton (front and rear)..... Just enough to eliminate drag
1½ and 2-Ton (front) .....
1½ and 2-Ton (rear) 2½-Ton (front and rear)..... 3 adj. notches

Toe-in of front wheels
½-Ton ..... 1/8" to 7/32"
¾, 1, 1½, 2 and 2½-Ton ..... ¼" to 5/16"

Torque Specifications (ft. lbs.)
Wheel Nuts 7/16" x 20 45-65
½" x 20 65-90
5/8" x 20 250-275
Dual 450-500
Front "U" Bolt Nuts
L.C.F. & 2 ton 115-125
All others 70-80
Rear "U" Bolt Nuts ½ ton 70-80
¾ and 1 ton 115-125
1½, 2, 2½ ton 200-225
Shackle Bolt Nuts 25-30

CHAPTER V

GENERAL INFORMATION

MANUFACTURER'S WARRANTY

It is expressly agreed that there are no warranties, expressed or implied, made by either the Dealer or the Manufacturer on Chevrolet motor vehicles, chassis or parts furnished hereunder, except the Manufacturer's warranty against defective materials or workmanship as follows:

"The Manufacturer warrants each new motor vehicle, including all equipment or accessories (except tires) supplied by the Manufacturer, chassis or part manufactured by it to be free from defects in material and workmanship under normal use and service, its obligation under this warranty being limited to making good at its factory any part or parts thereof which shall, within ninety (90) days after delivery of such vehicle to the original purchaser or before such vehicle has been driven 4,000 miles, whichever event shall first occur, be returned to it with transportation charges prepaid and which its examination shall disclose to its satisfaction to have been thus defective; this warranty being expressly in lieu of all other warranties, expressed or implied, and all other obligations or liabilities on its part, and it neither assumes nor authorizes any other person to assume for it any other liability in connection with the sale of its vehicles.

"This warranty shall not apply to any vehicle which shall have been repaired or altered outside of an authorized Chevrolet Service Station in any way so as in the judgment of the Manufacturer to affect its stability and reliability, nor which has been subject to misuse, negligence or accident. The Manufacturer has reserved the right to make changes in design or add any improvements on motor vehicles and chassis at any time without incurring any obligation to install same on motor vehicles and chassis previously purchased.

TIRE AND BATTERY WARRANTIES

The tires and battery furnished with your new Chevrolet carry separate warranties and should be registered with the nearest agent of the particular manufacturer. Your Chevrolet dealer will gladly assist you in this registration.

LOAD CAPACITY CHART

GROSS VEHICLE WEIGHTS FOR 1959 CHEVROLET TRUCKS AND SCHOOL BUSES

VEHICLE TYPE	MODEL AND SERIES DESIGNATION		WHEEL BASE	NOMINAL RATING	GROSS VEHICLE WEIGHT	GROSS COMBINATION WEIGHT	TIRES AND EQUIPMENT@ TIRE SIZE & PLY RATING FRONT	REAR	EQUIPMENT
SEDAN DEL. & P/U	1100	G59	119		4400	-----	8.00-14-4	8.00-14-4	
	1200	H59			4900		8.50-14-4	8.50-14-4	
LIGHT DUTY CONVEN-TIONAL	3100	3A59	114	1/2 Ton	¢ 4000	-----	6.70-15-4	6.70-15-4	
	3200	3B59	123-1/4		4300		6.70-15-6	6.70-15-6	
					ǂ 4600		6.50-16-6	6.50-16-6	8-leaf rear springs.
					§* 5000		7-17.5-6	7-17.5-6	
LIGHT DUTY FORWARD CONTROL	3400	3C59	104	3/4 Ton	¢ 5600	-----	7-17.5-6	7-17.5-6	
	3500	3D59	125		6200		7-17.5-6	8-17.5-6	
	3700	3F59	137		7000		8-17.5-6	8-17.5-8	
					7500		8-19.5-6	8-19.5-8	Optional front axle; H.D. 3-speed, 4-speed or automatic transmission; H.D. rear axle with 14 inch brakes.
					*10000		8-19.5-6	8-19.5-6 Dual	Same as above plus H.D. 10-leaf front springs; H.D. 8-leaf main and 5-leaf auxiliary rear springs.
LIGHT DUTY CONVEN-TIONAL	3600	3E59	123-1/4	3/4 Ton	§¢ 5200	-----	7-17.5-6	7-17.5-6	
					§ 5600		7-17.5-6	8-17.5-6	
					$ 6200		8-17.5-6	8-17.5-8	
					$* 6900		8-19.5-6	8-19.5-6	H.D. 10-leaf single stage rear springs.
							7-17.5-6	7-17.5-6 Dual	
	3800	3G59	135	1 Ton	§¢ 6200	-----	8-17.5-6	8-17.5-8	
					$ 7000		8-19.5-6	8-19.5-6	H.D. 8-leaf single stage rear springs.
					* 9600		8-19.5-6	8-19.5-6 Dual	H.D. 8-leaf main & 5-leaf auxiliary rear springs.
MEDIUM DUTY CONVEN-TIONAL AND LOW CAB FORWARD	4100	4A59	132-1/2	1-1/2 Ton Conven-tional	¢10000	-----	7-22.5-6	7-22.5-6 Dual	
					11000		7-22.5-6	7-22.5-8 Dual	
	4400	4B59	156-1/2		11000		8-19.5-6	8-19.5-6 Dual	
					12000		8-19.5-8	8-19.5-8 Dual	Hydrovac
					*14000		7-22.5-6	8-22.5-8 Dual	Same as above plus H.D. 10-leaf main and 5-leaf auxiliary rear springs.
	5100S	5D59	112-5/8	1-1/2 Ton Special L.C.F.	¢14000	-----	8-22.5-8	8-22.5-8 Dual	
	5300S	5L59	124-5/8						
	5400S	5E59	136-5/8		*15000		8-22.5-8	9-22.5-10 Dual	
	5700S	5F59	160-5/8						
	6100S	6F59	132-1/2	1-1/2 Ton Special Con-ventional	¢14000	-----	8-22.5-8	8-22.5-8 Dual	
	6300S	6R59	144-1/2						
	6400S	6G59	156-1/2						
	6500S	6H59	174-1/2		*15000		8-22.5-8	9-22.5-10 Dual	H.D. 10-leaf front springs.
	6703S	6T59	196-1/2						
	5100	5A59	112-5/8	2 Ton L.C.F.	¢14000	-----	8-22.5-8	8-22.5-8 Dual	
	5300	5K59	124-5/8		*16000		8-22.5-8	9-22.5-10 Dual	
	5400	5B59	136-5/8		*19000		9-22.5-10	9-22.5-12 Dual	H.D. 9-leaf front springs; H.D. 13-leaf main and 6-leaf auxiliary rear springs; 9-1/2 inch Hydrovac.
	5700	5C59	160-5/8						

MEDIUM DUTY CONVENTIONAL AND LOW CAB FORWARD	6100	6A59	132-1/2	2 Ton Conventional	‡14000	32000	8-22.5-8	8-22.5-8 Dual	
	6300	6P59	144-1/2		*16000		8-22.5-8	9-22.5-10 Dual	H.D. 10-leaf front springs.
	6400	6B59	156-1/2		*19000		9-22.5-10	9-22.5-12 Dual	H.D. 10-leaf front springs; H.D. 13-leaf main and 6-leaf auxiliary rear springs; 9-1/2 inch Hydrovac.
	6500	6C59	174-1/2						
	6703	6V59	196-1/2						
	5100H	5G59	112-5/8	2 Ton Heavy-Duty L.C.F.	*19500		9-22.5-10	10-22.5-10 Dual	H.D. 9-leaf front springs; H.D. 13-leaf main and 6-leaf auxiliary rear springs; 9-1/2 inch Hydrovac.
	5300H	5M59	124-5/8						
	5400H	5H59	136-5/8		*21000		9-22.5-10	10-22.5-10 Dual	H.D. 11-leaf front springs; H.D. 14-leaf main and 5-leaf auxiliary rear springs; H.D. 7000 lb. front axle; H.D. 15000 lb. rear axle; H.D. 9-1/2 inch Hydrovac.
	5700H	5J59	160-5/8						
	6100H	6L59	132-1/2	2 Ton Heavy-Duty Conventional	*19500		9-22.5-10	10-22.5-10 Dual	H.D. 13-leaf front springs; H.D. 13-leaf main and 6-leaf auxiliary rear springs; Taskmaster V-8 engine; 9-1/2 inch Hydrovac.
	6300H	6S59	144-1/2						
	6400H	6M59	156-1/2		*21000		9-22.5-10	10-22.5-10 Dual	H.D. 12-leaf front springs; H.D. 14-leaf main and 6-leaf auxiliary rear springs; H.D. 7000 lb. front axle; H.D. 16000 lb. rear axle; Taskmaster V-8 engine; H.D. 9-1/2 inch Hydrovac.
	6500H	6N59	174-1/2						
	¶ 6703H	6U59	196-1/2						
MEDIUM DUTY FORWARD CONTROL	6200	6J59	129-5/8	2 Ton	‡14000	-----	8-22.5-8	8-22.5-8 Dual	
	6600	6K59	153-5/8		*16000		8-22.5-8	8-22.5-10 Dual	
					*18000		8-22.5-8	9-22.5-10 Dual	H.D. 7000 lb. front axle; H.D. 12-leaf front springs.
SCHOOL BUS CHASSIS %	4502	4C59	156-1/2	30 Pupils	‡10500	-----	7-22.5-6	7-22.5-6 Dual	
				30 Pupils	12000		7-22.5-8	7-22.5-8 Dual	Hydrovac
				36 Pupils	*13000		8-19.5-8	8-19.5-8 Dual	Hydrovac
				36 Pupils	*13000		8-22.5-8	8-22.5-8 Dual	Hydrovac
	6702	6D59	196-1/2	42 Pupils	‡14000	-----	8-22.5-8	8-22.5-8 Dual	
				48 Pupils	*16000		9-22.5-10	9-22.5-10 Dual	
					17000		9-22.5-10	9-22.5-10 Dual	
					*18000		9-22.5-12	9-22.5-12 Dual	H.D. 15-leaf 2-stage rear springs.
	6802	6E59	222-1/2	48 Pupils	‡14000	-----	8-22.5-8	8-22.5-8 Dual	
				54 Pupils	*16000		9-22.5-10	9-22.5-10 Dual	
					17000		9-22.5-10	9-22.5-10 Dual	
					*18000		9-22.5-12	9-22.5-12 Dual	H.D. 15-leaf 2-stage rear springs.
	8802	8F59	240	60 Pupils	‡14000	-----	8-22.5-8	8-22.5-8 Dual	
					17000		9-22.5-10	9-22.5-10 Dual	
					*19500		9-22.5-12	9-22.5-12 Dual	
					*20000		10-22.5-10	10-22.5-10 Dual	
	10802	10F59	240	60 Pupils	‡17000	-----	9-22.5-10	9-22.5-10 Dual	
					*19500		9-22.5-12	9-22.5-12 Dual	
					*20000		10-22.5-10	10-22.5-10 Dual	
					*22000		10-22.5-10	10-22.5-10 Dual	H.D. 16000 lb. capacity rear axle; H.D. 14-leaf 2-stage rear springs.

	7100	7A59	112-5/8	2-1/2 Ton Low Cab Forward	¢14000	34000	8-22.5-8	8-22.5-8 Dual	
					17000		8-22.5-8	9-22.5-10 Dual	
	7200	7B59	124-5/8		19000		9-22.5-10	9-22.5-12 Dual	
	7700	7C59	172-5/8		*19500		9-22.5-10	10-22.5-10 Dual	
					*22000	35000 38000 &	9-22.5-10	10-22.5-10 Dual	H. D. 7-leaf front springs; H. D. 11-leaf main and 7-leaf auxiliary rear springs; H. D. 16000 lb. rear axle.
	8100	8A59	132-1/2	2-1/2 Ton Conventional	¢14000	34000	8-22.5-8	8-22.5-8 Dual	
	8200	8B59	144-1/2		17000		8-22.5-8	9-22.5-10 Dual	
HEAVY DUTY CONVENTIONAL AND LOW CAB FORWARD	8400	8C59	156-1/2		19000		9-22.5-10	9-22.5-12 Dual	
	8500	8D59	174-1/2		*19500		9-22.5-10	10-22.5-10 Dual	
	8700	8E59	192-1/2		*22000	35000 38000 &	9-22.5-10	10-22.5-10 Dual	H. D. 7-leaf front springs; H. D. 11-leaf main and 7-leaf auxiliary rear springs; H. D. 16000 lb. rear axle.
	‡ 9100	9A59	112-5/8	2-1/2 Ton Low Cab Forward	¢17000	38000	9-22.5-10	9-22.5-10 Dual	
					*19500		9-22.5-10	10-22.5-10 Dual	
	‡ 9200	9B59	124-5/8		*22000	42000	9-22.5-10	10-22.5-10 Dual	H. D. 8-leaf front springs; H. D. 11-leaf main and 7-leaf auxiliary rear springs.
	9700	9C59	172-5/8		*25000	48000	10-22.5-10	11-22.5-12 Dual	H. D. 8-leaf front springs; H. D. 13-leaf main and 7-leaf auxiliary rear springs; frame reinforcements.
	‡10100	10A59	132-1/2	2-1/2 Ton Conventional	¢17000	38000	9-22.5-10	9-22.5-10 Dual	
					*19500		9-22.5-10	10-22.5-10 Dual	
	‡10200	10B59	144-1/2						
	10400	10C59	156-1/2		*22000	42000	9-22.5-10	10-22.5-10 Dual	H. D. 8-leaf front springs; H. D. 11-leaf main and 7-leaf auxiliary rear springs.
	10500	10D59	174-1/2						
	10700	10E59	192-1/2		*25000	48000	10-22.5-10	11-22.5-12 Dual	H. D. 8-leaf front springs; H. D. 13-leaf main and 7-leaf auxiliary rear springs; frame reinforcements.
HEAVY DUTY TANDEM OPTION	8400	8C59	156-1/2	2-1/2 Ton	24000	45000	8-22.5-8	8-22.5-8 Dual	Tandem equipment
	8500	8D59	174-1/2		*28000		8-22.5-8	9-22.5-10 Dual	
	8700	8E59	192-1/2						
	10400	10C59	156-1/2		24000	50000	8-22.5-8	8-22.5-8 Dual	
	10500	10D59	174-1/2		30000		8-22.5-8	9-22.5-10 Dual	Tandem equipment; power steering.
	10700	10E59	192-1/2		*36000		9-22.5-10	10-22.5-10 Dual	

* - A plate is supplied with each vehicle showing chassis number and maximum Gross Vehicle Weight (GVW). The maximum GVW rating includes the truck chassis with lubricants, water and full tank or tanks of fuel, plus the weight of the cab or driver's compartment, body, and special chassis and body equipment, and payload. These GVW ratings are reduced per above table when tires and/or equipment of less capacity are used. Series H58 and G58 plates show no GVW.

¢ - Base GVW, tires shown included in base price.

@ - Minimum equipment and tires for each GVW rating shown, extra ply rating and/or oversize tires and equipment are available.

% - Minimum School Bus Standards require tires of same size and ply rating on both front and rear of vehicle. However, when Minimum School Bus Standards are not required, tires of lesser size and ply rating for the front wheels are available.

$ - GVW rating is increased by 400 pounds on Four-Wheel Drive Models.

§ - GVW rating is increased by 600 pounds on Four-Wheel Drive Models.

† - Maximum GVW rating on Model 6703H is limited to 19500 pounds.

- Models within these series, when equipped with RPO 399, are coded with a "K" or "T" prefix.

‡ - Frame reinforcements are not mandatory for the 25000 GVW on these models.

& - This GCW available with 348 engine option.

+ - Base GVW for 3100 Four Wheel Drive models.

OWNER'S SERVICE POLICY

Upon delivery of your new Chevrolet truck, you received an Owner Service Policy which you should read carefully. Keep this policy with your truck during the warranty period as it serves to introduce the Owner to any Chevrolet dealer.